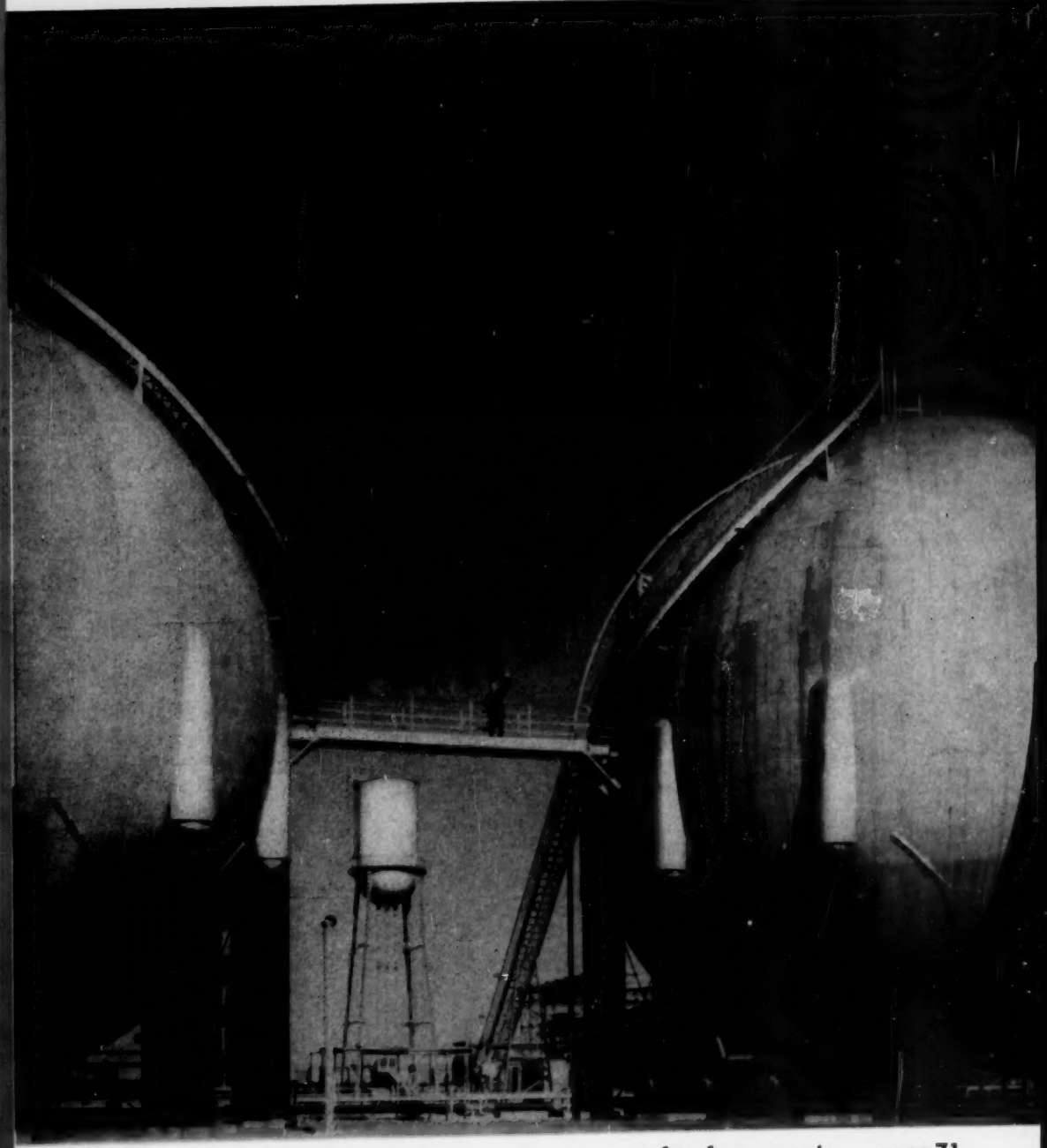
the magazine of STANDARDS



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MARCH 1961

in two parts . . . part one

the magazine of STANDARDS

Standardization is dynamic, not static. It means not to stand still, but to move forward together.

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PART TWO

Catalog of American Standards

Opinions expressed by authors in THE MAGAZINE OF STANDARDS are not necessarily those of the American Standards Association.

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ASA

THE COVER: As use of anhydrous ammonia in agriculture increases, huge storage spheres such as these are becoming generally accepted features of the landscape. These low-pressure spherical containers store anhydrous ammonia under refrigeration. Each can hold 2,500 tons.

Photo: Nitrogen Division, Allied Chemical & Dye Corporation

notes

• Through the courtesy of one of our readers we now have the name of the unidentified man in the picture on page 44 of the February issue. He is A.T. Potjer of the N.V. Philips Company, The Netherlands. Mr Potjer is assistant secretary of Technical Committee 40, Components for Electronic Equipment, of the International Electrotechnical Commission. He was one of the delegates who attended the IEC General Meeting in India, October 30-November 12, 1960.

• As indicated in the editorial paragraph introducing the article on Argentina's standards program (page 68), the American Standards Association will be represented at a meeting of the Pan American Standards Committee April 24-28, in Montevideo, Uruguay. In a recent report, Cyril Ainsworth, deputy managing director of ASA, has pointed out that one of the most important points of interest in discussions concerning PASC has been the relation of standardization to the free trade zone established under the Treaty of Montevideo. This treaty has been ratified by the necessary number of countries and will soon become effective.

"The principal objectives of the Montevideo Treaty are to promote expansion of trade and further gradual economic interchange between Argentina, Brazil, Chile, Mexico, Paraguay, Peru, Uruguay, and other Latin-American countries which decide later on to join the Latin-American Association of Free Trade established by the treaty," Mr Ainsworth explains. (See also "Latin America; Industrial Development and Standards", MAGAZINE OF STANDARDS, May 1960.)

• Some 230 new and revsied American Standards are listed, and identified by a star, in the new catalog published as Part 2 of this issue. Listed in numerical order, the standards can be located by using the index to titles in the back of the book.

This Month's Standards Personality

J. Lloyd Barron

photo: Pach Bros., N.Y.

A SANITATION ENGINEER concerned with improving building standards, J. Lloyd Barron has been chairman of ASA's Construction Standards Board since 1946. As a member of the Board since 1944, Mr Barron brings to it the viewpoint of the American Public Health Association, supplementing the views of the construction industry, architects, and building officials. His problems as chairman are not simple—to support and encourage the great national building code organizations in their attempts to agree on uniform performance standards, and to supervise development of national standards for building materials and equipment.

Mr Barron has been director of sanitation for the National Biscuit Company of New York since 1945. He started his career as assistant state sanitary engineer in Kansas in 1923. After six years, he moved to the New York State Health Department, where he served as assistant sanitary engineer. The problems of a rapidly growing suburban county intrigued him, however, and soon he became sanitary engineer for New York's Westchester County. After eight years, he undertook the same job for Nassau County, Long Island.

In 1945, Mr Barron changed to private industry, as sanitary engineer with the National Biscuit Company. Here, he has pioneered in separating maintenance of industrial work environments from maintenance of production and mechanical equipment, and in providing coordinated, high-level management for industrial sanitation.

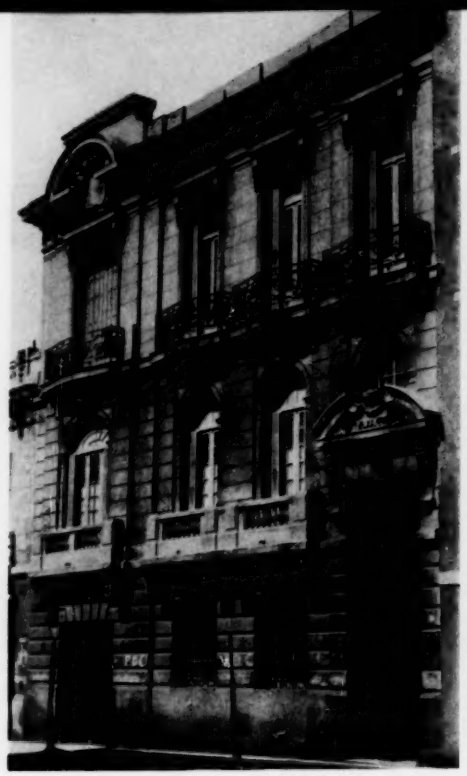
Mr Barron helped form the Baking Industrial Sanitation Standards Committee in 1949, serving as chairman from 1953 to 1958. This committee has completed and published 17 standards dealing with sanitary design of baking machinery and equipment.

In addition, Mr Barron has lectured on environmental sanitation at Columbia University (1938-1945), has served for 15 years as engineering consultant to the Professional Examination Service of the American Public Health Association, and is author of many published papers on sanitary engineering and industrial sanitation, as well as a booklet on building maintenance.

As founder and past president of the Institute of Sanitation Management, Mr Barron is a Fellow of the American Society of Civil Engineers and of the American Public Health Association. He is also a member of the Conference of Municipal Public Health Engineers.

Among his personal interests, Mr Barron lists writing "with symphonic music in stereo in the background," visiting art museums, and working in his garden for exercise. His stepson, incidentally, is director of the Art Institute of Chicago.

Growing interest in standardization as a factor in the economic development of Latin American countries makes this article about the standards program of Argentina especially timely. Following the international conference on standards that celebrated the twenty-fifth anniversary of IRAM, Argentina's national standards organization, plans have been made for reorganizing the Pan American Standards Committee. A reorganization meeting is being held in Montevideo, Uruguay, April 24-28. On recommendation of a committee of industry and ASA member-body representatives, the American Standards Association will be represented.



How Argentina Develops Standards

The Instituto Racionales Argentina de Materiales—Argentina's National Standards Association

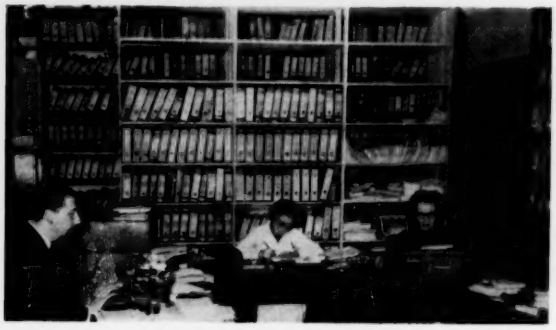
by Ing Beatriz Ghirelli de Ciaburri

Senora de Ciaburri, shown here in her office, is director general of Argentina's standards body, IRAM.

TOP: IRAM's headquarters in Buenos Aires.

LEFT (top): Delegates at opening session of the International Congress on Standardization, celebrating IRAM's 25th anniversary, September 1960.

BELOW: Heads of delegations (seated, left to right): Ing. Arturo Yermoli, Organization of American States; R. Frontard, AFNOR, France; Ing. Carlos Hoerning, INDITECNOR, Chile; Dr Carlos Abeledo, president, IRAM; Ing. Beatriz Ghirelli de Ciaburri, director general, IRAM; Dr Rodolfo Hernandez Corso, Mexico; H. A. R. Binney, BSI, United Kingdom. (Standing; left to right): Ing. Erich Bahr, Dr Eugenio Bendisch, Argentine Center of German Engineers; Ing. A. Sinay Neves, ABNT, Brazil; Dr A. R. McPherson, National Bureau of Standards, USA; Ing. Juan P. Molfino, Uruguay; Dr Norman Bekkedahl, National Bureau of Standards, USA; Cyril Ainsworth, American Standards Association, USA; Henri St Leger, general director, International Organization for Standardization.



ABOVE: Working on drawings for lamp standards in IRAM's drafting department. BELOW: A view of the library.

THE ARGENTINE INSTITUTE for Standardization of Materials (IRAM) was founded in 1935. Among its founder members were representatives of public organizations, industrial groups, and professional organizations such as the Engineering Center of Argentina, the Argentine Chemical Association, and the Central Society of Architects.

The problems of Argentine consumers and the necessity of finding a solution to them offered the principal motivation for the creation of IRAM. Especially important were the problems of the State Government in its purchasing of materials, products, and machinery for use in large-scale public works. Up to that time, Government purchases had been made in the markets commonly used in Argentine commerce. In general, the products purchased were those carrying well-known trade marks and which were known to give good results in use. Naturally, this method made it impossible to obtain any particular technical data on the products used. Since there was also little practical industrial experience, the consumer found himself without data with which to set up necessary specifications.

In the year 1930, the Government had adopted the barter system as a general economic policy in international commerce. As an indirect consequence of this policy, products were purchased from new markets, and purchasers found they were faced with certain serious difficulties in the acceptance or refusal of the goods offered.

As a result, when IRAM was organized, it found it was necessary to develop standards which would facilitate trading in products originating from different sources.

One should not overlook the fact that in 1935 no limitation on imports existed. For this reason, industry in Argentina developed in those fields which presented no technical problems or where the acquisition of merchandise alone assured a reasonable profit.

The first standards, then, not only had to solve the problem of purchasing but also had to cope with the importers who were striving to change Argentina's standards in line with the standards of other countries without taking into consideration the future possibilities of Argentina's own industrialization. This danger was avoided, thanks to the support given to the work of IRAM by the professional representatives of governmental organizations and technical associations, supported by a steadfast group of specialists who by their actions counteracted any possible interference on behalf of the local importers.

As a result, IRAM's standards had characteristics which approximated those of international standards, since in each case it had to be kept in mind that Argentina was an importing country and its young industry was responding to the various influences of the countries from which it purchased its materials and equipment.

These facts forced IRAM to study its standards with the greatest caution; in every case, foreign standards had to be analyzed thoroughly in order to find the best solution to the problem at hand.

In the meantime, various political changes and different economic adjustments which have occurred since the formation of IRAM to the present time have made their influences felt in the standardization program. As importing has lost its importance, standards work has had to be directed toward coordination in Argentine industries, which had been developing unsystematically. Also, a solution had to be found to the technical and economic problems caused by excessive regulation by the Government which even went so far as to prohibit all importation of certain items.

IRAM's action to counteract the effect of such arbitrary rulings has been highly significant, because it has gained the support of industrialists who are sincerely interested in producing really good articles. The result has been that the governmental authorities have insisted that all their purchases should be made in conformity with IRAM standards. This has influenced the Argentine industrialists to recognize the importance of standardization.

In order to understand this fully, it should be remembered that in Argentina the Government is the largest buyer and consumer, and the policy it follows with respect to its purchases is basic to the conduct of industry.

Assured of the State's position with respect to standards, which reached its climax in 1957 when the Government prescribed the mandatory use of stand-

ards for official purchases, the nation's industry has found a firm basis for its development. As a result, Argentina's industries have become strongly interested in undertaking work on standards which meet their requirements and also meet the needs of the consumer. This trend makes it possible for us to say that IRAM standards, which are continually being revised, reflect at any given moment the level to which the industry of Argentina has developed.

In actual practice, when an industrial executive wishes to start manufacturing a new product, he refers his problem to IRAM for study of appropriate standards in order to avoid any practical difficulties of production.

To give an idea of the extent of standardization work in Argentina: In 1960, 27 committees were functioning, with 136 subcommittees and special commissions; some 1,231 meetings were held; and 556 standards were under development, of which 177 were approved.

To complete this short description of Argentina's standardization program, we will explain how IRAM standards are developed.

At the end of the period during which meetings are held each year—approximately from the middle of March to the middle of December—each organization draws up its plan of work, taking into account the requests of its members, the needs shown in the preliminary studies, and the suggestions of IRAM's General Director.

The technical personnel studies the material in the Institute's files relating to the subject under consideration, analyzes all the possibilities and the methods of manufacturing in the country, and when all these aspects have been considered, prepares a draft standard. This draft is circulated for comment among all interested organizations of consumers, manufacturers, and scientists.

These organizations discuss the draft sent by the technical committee and introduce modifications to bring it into conformity with the practices and capabilities of the country, keeping always in mind that the standard should be closely compatible with similar work in other countries, and trying to avoid solutions having purely local interest.

These studies in many cases, and more and more frequently, are completed by practical experiments or tests in different laboratories, as a rule in laboratories belonging to member organizations, using samples sent by the manufacturer to IRAM for examination. When discussion of the draft is completed by the special subcommittee or commission, it is sent out for public comment over a period varying from 45 to 180 days. After that period, the draft is re-examined by the study committee. If it is approved, it goes to a special committee, the principal function of which is to check on whether any important considerations involved in the test have been overlooked in the draft.

Technical department at IRAM's headquarters

When this study is completed, the draft standard goes up another step to an organization called the General Committee on Standards. The function of this committee is to take care of the symbols, definitions, and general questions of editing to see that the draft conforms with the criteria prescribed by IRAM. With this step, the procedure cycle in the development of IRAM standards is complete.

Since the national government has adopted IRAM standards for its purchases, it has officially established the following procedure for this purpose: (*a*) The national government appoints a commission, comprising one representative and one alternate member for each ministry and each decentralized entity, such as Yacimientos Petroliferos Fiscales (Petroleum Oilfield Administration); the National Telecommunication Association, and similar organizations; (*b*) This commission sends IRAM standards to each of the participating organizations for comment and criticism for a period not exceeding three months; (*c*) If the standard does not meet with any objection, it becomes an *official mandatory IRAM standard* which must be used in every purchase made by the Government.

Note: If there is objection to the standard, it is returned to IRAM for reconsideration, because the official government organizations are not authorized to make any changes.

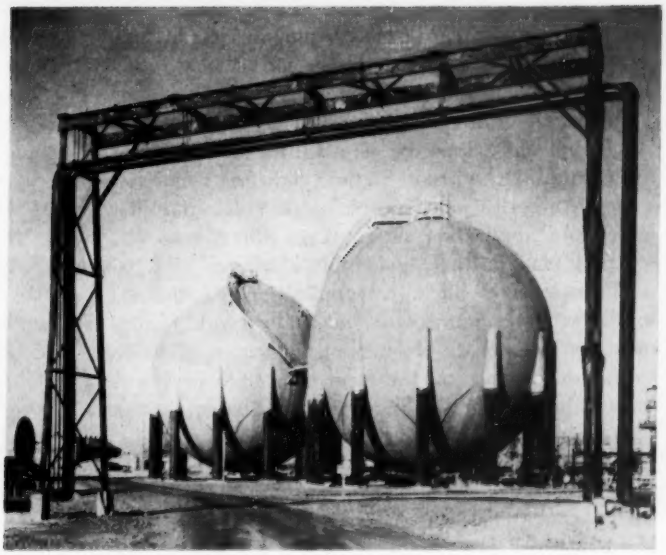
As supplementary information, it may be of interest to note that the personnel of IRAM in 1960 consisted of the following:

Director General	
Deputy Director	
Technical staff	24
Publicity staff	3
Draftsmen	3
Secretaries	17
Accountants	7
Librarians	2
Printing	5
Auxiliary personnel	4

We shall be happy if this description of Argentina's standards program helps to interest our United States friends in knowing more about our work. We hope that our mutual acquaintance may bring about a growth of understanding which will eventually result in only one standard for each material on the entire continent.

SAFETY FOR AMMONIA

by EDWIN A. OLSEN



Relatively low-pressure spherical containers are used for refrigerated storage of anhydrous ammonia. Each sphere can hold 2500 tons of ammonia.

Photos: Nitrogen Division, Allied Chemical & Dye Corporation.

Where and how to store anhydrous ammonia and how to handle it safely—new standard offers nationwide safety guide

IN 1950, ammonia capacity in the United States was a little more than 1.5 million tons per year. Today, use of ammonia is increasing to the point where capacity is approaching 5.0 million tons per year. As production and use of ammonia have continued to rise due to the recent widespread use of anhydrous ammonia as a fertilizer, regulatory authorities, designers of storage and handling equipment, insurance carriers, and the ammonia industry people themselves have felt the need for generally recognized rules to assure safety. The new American Standard Safety Requirements for the Storage and Handling of Anhydrous Ammonia,[1] approved on October 28, 1960, will fill this need.

The term "ammonia" as used in this standard refers to anhydrous ammonia and should not be confused with aqueous ammonia which is a solution of ammonia gas in water. Ammonia is a pungent and colorless gas at atmospheric temperatures and pressures and serves as its own warming agent. It may be compressed and cooled to a colorless liquid which boils at −28 F at atmospheric pressure. Under moderate pressure, gaseous ammonia liquefies, but upon release of the pressure the liquid is readily converted back to the gaseous phase. Advantage is taken of this characteristic by the industry and, as a convenience, ammonia is shipped and stored under pressure as a liquid. Permanent storage containers for anhydrous ammonia are generally designed for a pressure of 250 pounds per square inch.

The pressure characteristics of ammonia are fairly similar to those of propane, a popular gas having a wide variety of uses, including domestic cooking and heating in areas not serviced by piped manufactured or natural gas. In view of this, there is a marked similarity between storage and transportation equipment used in propane and that used in ammonia service, although propane equipment cannot be used safely in ammonia service without some modifications or added precautions.

To find the spark which fired a widespread need for information on the storage and handling of ammonia, it is necessary to take a look at what was happening on farms in the Mississippi delta area in the late 1940s. Recognizing that several common types of solid nitrogen fertilizers, such as ammonium nitrate, nitrate of soda, and urea, are manufactured by processes which utilize anhydrous ammonia as a raw material, the Mississippi Agricultural Experiment Station started work in 1943 to determine crop response to anhydrous ammonia as a source of nitrogen. This was done with a view toward eliminating the costly

MR OLSEN is secretary of Sectional Committee K61, Storage and Handling of Anhydrous Ammonia and Ammonia Solutions. He is technical secretary of the Compressed Gas Association, sponsor of Committee K61.

[1] American Standard K61.1-1960, sponsored and published by the Compressed Gas Association, can be obtained at $1.00 from CGA and from the American Standards Association.

manufacturing processes required to convert ammonia into solid nitrogen fertilizers. If ammonia could successfully be applied directly to the soil, it would produce nitrogen fertilizer at the lowest possible cost.

The result of the research program conducted in Mississippi and supported jointly by the Mississippi Agricultural Experiment Station and the Tennessee Valley Authority was successful; in 1947 the first large-scale application of ammonia directly to the soil took place in the Mississippi delta area.[2]

The success of the direct application of ammonia to the soil was immediate and widespread. Equipment for the storage of ammonia and its application to the soil for use on the farm came into great demand. Storage facilities and transportation equipment operated by ammonia distributors had to be expanded many times.

Equipment for the storage and handling of ammonia could not keep pace with the demand, and available propane storage facilities and distribution equipment were pressed into ammonia service. A number of unfortunate accidents occurred when propane equipment was indiscriminately used in ammonia service without taking certain necessary additional precautions. For example, brass fittings are commonly used with LP-gas equipment, but ammonia in the presence of air and moisture has an adverse effect on brass. This resulted in the failure of many brass fittings used in ammonia service during the early days of the expanding argricultural use of ammonia.

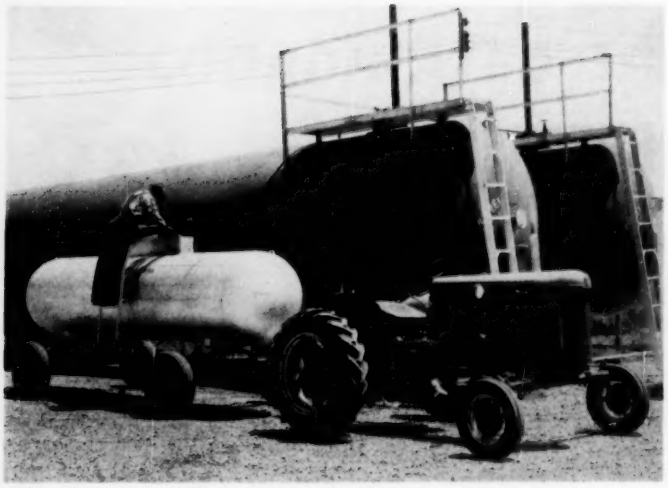
State and local regulatory authorities sought a guide to establish minimum requirements for safety that would apply to those installations within their jurisdiction. Designers and fabricators of ammonia systems were looking for assistance, as were other responsible agencies, such as the insurance carriers called upon the insure these installations.

Prior to the tremendous growth in agricultural use of anhydrous ammonia, transportation of this gas was confined to containers under the jurisdiction of the Interstate Commerce Commission or the U.S. Coast Guard. Storage facilities were generally under the supervision of industrial producers or consumers who were well acquainted with the properties of the gas and the necessary methods of proper storage and handling. This condition changed rapidly in the late 1940s as the marketing of ammonia changed from producer to distributor control. During 1950, the anhydrous ammonia industry, through the Compressed Gas Association, developed the first standard for the storage and handling of anhydrous ammonia. This standard was used to assist states such as Arkansas, Georgia, Louisiana, and Mississippi in the development of their regulations dealing with the storage and handling of anhydrous ammonia. Later, the Agricultural Ammonia Institute, using the CGA standard as a base, developed and published a standard. In addition to serving as a guide to regulatory authorities, these standards aided the expanding ammonia industry in designing and installing the many facilities needed to meet the farmers' demands.

In 1951, the Compressed Gas Association accepted the role as sponsor for the development of an American Standard on this subject, and offered its own standard on ammonia as a basis for initiating the work on the American Standard. Today, no less than 17 states and countless municipalities have laws dealing with ammonia installations. These have been developed using as a guide the standard of the Compressed Gas Association as well as that of the Agricultural Ammonia Institute. Many of the regulations developed by local and state authorities are not in agreement. Release of the American Standard should contribute materially toward achieving greater uniformity among the various regulations dealing with ammonia. Some states are known to have delayed the promulgation of ammonia regulations in anticipation of the development of the American Standard. With the release of American Standard K61.1-1960,

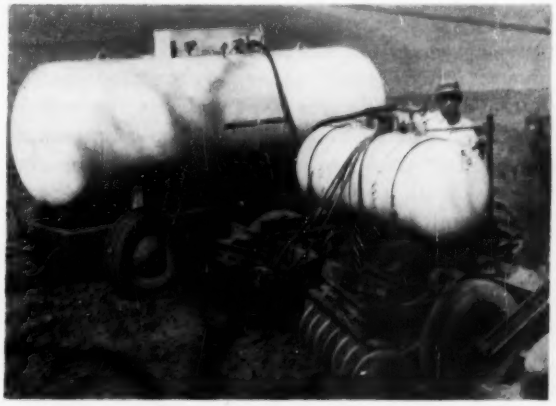
Preparing to load a tank car with anhydrous ammonia

[2] The use of ammonia as a fertilizer by direct injection into the soil took place several years earlier on the Pacific Coast. The strong demand for safety standards, however, did not occur until the successful commercial application of agricultural ammonia took place in the Mississippi delta area.



LEFT: Here, a special farm truck is being charged with ammonia from the storage tanks for transporting to the applicator unit in the field.

BELOW: In the field, ammonia is charged from the special farm truck to the applicator unit used to inject ammonia into the soil.



we can anticipate the adoption of regulations in additional communities based on the requirements of the American Standard.

To make certain that containers for storage, transportation, and use of ammonia are sufficiently strong, the standard provides that they be designed in accordance with appropriate codes for unfired pressure vessels or in accordance with the specifications of the Interstate Commerce Commission. Certain container markings are prescribed to be sure that essential information concerning the characteristics of the container is readily available at all times.

Requirements considered essential for safe installation of valves and their appurtenances, piping and hoses, and safety relief devices to protect the system from excessive pressures are included.

How far should ammonia storage containers be located from highways and railroads, residential buildings, places of public assembly, and institutions? An important part of the standard spells out the minimum safe distances from such exposures for containers of various capacities.

In case an emergency should arise, the standard lists safety equipment for emergency and rescue purposes, recommended for use with the various ammonia storage and handling systems.

The standard applies to the design, construction, location, installation, and operation of anhydrous ammonia systems. It does not apply to ammonia manufacturing plants, or to refrigerating or air-conditioning systems. The several sections into which the standard is divided deal with various types of systems. These sections cover portable ICC containers, stationary storage containers, both refrigerated and non-refrigerated, tank motor vehicles for the transportation of ammonia, and systems mounted on farm vehicles.

There were many differences which had to be reconciled among the various interests responsible for writing this standard before final approval was possible. Designation as an American Standard indicates that this work represents the best consensus of all interested parties concerning the minimum safety requirements necessary for storage and handling facilities for anhydrous ammonia.

Perhaps the greatest accomplishment of a safety standard such as this is the protection it affords the public, including those who use ammonia, who work around it, or those who may find themselves a neighbor to an ammonia installation or exposed to a highway vehicle transporting ammonia. When all requirements of the standard are followed, we can rest assured that reasonable precautions for safety have been taken. The standard is consistent with Federal regulations applicable to ammonia such as those of the Interstate Commerce Commission and the U.S. Coast Guard, as well as other related American Standards. It includes reference to such standards as American Standards B9.1, Safety Code for Mechanical Refrigeration; B31.1, Code for Pressure Piping; and Z48.1, Method for Marking Portable Compressed Gas Containers to Identify the Material Contained.

American Standard K61.1-1960 should become the "bible" for designers and those who must certify to the adequacy of a given installation from the safety point of view.

Standard Applies to NEW CIRCUIT BREAKERS

by O. B. VIKOREN

AMERICAN STANDARD C37.7-1960, Power Circuit Interrupting Rating Factors for Reclosing Service, supersedes American Standard C37.7-1952 so far as new circuit breakers are concerned.[1] As the name indicates, this standard specifies how and to what extent standard interrupting ratings are affected if circuit breakers are used on reclosing service. If the number of reclosures is increased, or the time interval between reclosures is reduced below the basic value—in other words, if a deviation is made from the basic duty cycle—then the short circuit current which the circuit breaker can be called upon to close against and interrupt must be limited. It is these limits for various conditions of reclosing which now have been brought up to date.

The question may be raised as to why it has taken such a long time to bring about this revision. The facts are that only three years after the 1952 standard was issued, the Power Circuit Breaker Subcommittee of the American Institute of Electrical Engineers suggested that work be started on a revision. This suggestion was made because impracticable conditions had arisen in connection with reclosing of new, large circuit breakers which were then coming into use. Such a problem had not existed as long as the interrupting ratings did not exceed 5,000 megavoltamperes, which generally had been the case prior to that time. Since the interrupting ratings were increasing in relatively much greater steps than had been experienced in the past, thereby introducing new problems with regard to reclosing, and since the demand for rapid reclosing was becoming rather commonplace among the users of the larger circuit breakers, it was to be expected that the revision of C37.7 would be a more time-consuming task than the average.

It may logically be asked how the 1960 standard compares with that of 1952. The application of the old and the revised standard is directly comparable only to the extent that in each case the user has to select the duty cycle he desires to use. Once a duty cycle has been selected for an old breaker, and provided it corresponds to one of two curves in the old standard, a derating value can be read directly; otherwise, a computation has to be made. The latter is generally the case. In the revised standard for the new breakers, only one curve and a simple formula are used in all cases, and the formula is easily solved because the variable parameters are readily obtainable. Generally, it may be stated that less reduction will be required of the interrupting ratings of circuit breakers manufactured subsequent to ASA approval of the revised standard. However, some relatively minor restrictions have been incorporated. These apply only to a few circuit breakers which normally are not used on reclosing service. If reclosing is desired for these breakers, the manufacturer should be consulted for reclosing factors.

But what happens to the circuit breakers manufactured before the approval of C37.7-1960? Are those breakers to adhere to the 1952 revision? The answer to the latter is, "yes," because generally a new standard cannot be retroactive and it would be a definite mistake to apply the more liberal 1960 derating values to circuit breakers whose interrupting ratings at operating voltage are above 20,000 amperes. This is because they were not designed to operate on reclosing except at the more conservative derating values established prior to the 1960 approval of the revised standard. Below 20,000 amperes, the differences between the 1952 and the 1960 values are only slight.

It may be argued that one reason for revising American Standard C37.7-1952 was the fact that it was not practicable to use the 1952 edition on relatively new circuit breakers with high interrupting ratings. That is true, but there will always be borderline cases. To make certain that circuit breakers falling in the "twilight zone" are not misapplied, the manufacturer should be consulted when doubt exists on the correct selection of derating factors. On the other hand, the majority of these cases should already have been solved. From now on, the users will be concentrating most of the time on new circuit breakers to which the revised standard applies. This, it is believed, will be found convenient to use, because special efforts were made in that direction by the men who gave so much of their time to make the revision of the standard a reality.

MR VIKOREN, *engineer with the Philadelphia Electric Company, is secretary of Sectional Committee C37, Power Switchgear.*

[1] American Standard C37.7-1960 can be obtained from ASA at 40 cents per copy.

COORDINATED SPECIFICATIONS

Why their use would be important to industry and to the military services

by RAYMOND SOWARD

MR SOWARD is senior staff engineer, Convair-Pomona, Convair Division of General Dynamics Corporation. He is also consultant for the Office of the Director of Defense, Research and Engineering, Office of Electronics, on matters relating to the military standardization program and, as a member of the Ad Hoc Study Group on Parts Specification Management for Reliability, to the program management and preparation of military parts specifications. Mr Soward is assigned to the DoD but works with the Supply and Logistics group on matters pertaining to engineering standardization and policies, procedures, and programs.

EVERYONE who is connected in any way with the design, production, or use of military equipment can be presumed to have an interest in coordinated specifications.

Let us examine such a presumption, however.

First, what is meant by coordinated specifications? There can be many degrees of coordination. It could be said that if only two individual companies or two military services or an association of companies were to use a given specification, this would be a coordinated specification. This would be true. In this paper, however, coordinated specifications are defined as "parts specifications which have been coordinated and accepted by the three military services, the parts users, and the parts manufacturers." Development and research specifications, equipment or systems specifications, and commodity or process specifications for which the need is clearly limited to an individual military service are specifically not included in the definition of coordinated specifications. Included in the definition, however, is the understanding that the format for presentation of information concerning the attributes of the parts, the use of the parts, and the procurement, inspection, and reliability of the parts will have been formalized to the satisfaction not only of the military services but also to the satisfaction of the parts users and parts manufacturers. This understanding also applies to formalization of a procedure for qualification approval of parts manufacturers and for the expeditious coordination of the specifications.

Who, then, should have an interest in coordinated specifications, *why* should this interest exist, and *what* are the reasons why everyone does not always use such specifications?

It is evident that no urgent need for parts specifications exists until an equipment has been designed or proposed for design which contains such parts. Since we are speaking of military equipment, we can say that the military service first establishes the need for certain equipment, and then contracts either with industry or with one of its own laboratories to build the equipment. Industry (and from here on we will refer to industry as the "parts user") needs parts not only for research and development but also for production. Since the parts user must buy these parts with confidence, at a good price, and on a schedule, he needs a specification. If he writes his own specification and does not use coordinated specifications, he usually finds he has the following troubles:

With the parts manufacturer—

(1) The parts manufacturer has built his parts to some other specification which differs in certain, perhaps minor, details from those of the parts user.

(2) The parts manufacturer must many times run special tests, as called out in the parts user's specification, on his standard parts. These tests cost extra, and delay shipments.

(3) If the parts manufacturer is not equipped to run the tests, then the parts user must run them.

(4) Many times only one manufacturer is willing to accept the specification, so the parts user has no alternate sources for the parts.

With the military services—

(1) The military services require complete reports in elaborate approval procedures for the use of nonstandard parts, stating how and why the particular parts must be used instead of standard parts.

(2) When parts are used which are procured to specifications other than coordinated specifications, a special problem in handling of spare parts is created for the parts user and the military services. This problem is related to the number under which the part should be cataloged and stocked; that is, should it be identified by the parts manufacturer's

number or by the parts user's number, if stamped on the part? If the parts user's number is not on the part, the question arises, does the parts manufacturer's number signify his standard part, or is the number a special one assigned to a part built specifically to meet the requirements of the parts user's specification? In any case, there is small assurance that a suitable part will be cataloged and stocked for the specific requirements.

If the parts user, on the other hand, procures his parts to the requirements of coordinated specifications, all the above troubles are eliminated. The parts manufacturers supply their standard parts with no special tests required and no extra costs, and the military services are extremely happy that there is no need to issue nonstandard parts approval. The parts user very definitely benefits from, and should have an interest in, the use of coordinated specifications.

Why is it, then, that the parts user believes it is necessary to write his own specifications instead of using coordinated specifications? There are probably many reasons, among which might be the following:
(1) Although a few excellent coordinated specifications exist, practically all military parts specifications fail to cover certain environmental requirements which much military equipment encounters today; for example, high-frequency vibration.
(2) Many parts users have given up hope that military specifications will ever be brought up to date; accordingly they feel their only hope is to continue writing their own specifications. Therefore, they "grind them out" on a steady basis.
(3) Many parts users have not progressed in the direction of specification and application of planned parts to the point where they question routinely the validity and accuracy of environmental requirements which, perhaps, fall just barely outside standard test conditions called for in the coordinated specification. As a result, we find in some specifications a vibration requirement of 11 g's instead of 10 g's; in others we find a requirement for 130 C instead of 125 C; and similar discrepancies in others.

A VERY CAREFUL, SEVERE, SOUL-SEARCHING examination on the part of the parts user of his purported "iron-clad" requirements will many times reveal a lack of validity of data which is positively shocking. Many times, too, it will be found that temperature and vibration requirements are established on the basis of evaluation tests that are run, perhaps, on only one prototype of a piece of production equipment which even the designers themselves would describe as "unsuitable for production." Specifications are written, then, in an attempt to describe parts which will work even in such an unsatisfactory design, and the excuse is given that the "schedule" does not permit time for needed redesign. The result is the generation of separate and special specifications to cover different, and many times fallacious and artificial, requirements. The parts which will ultimately be supplied to the specification, however, will far more than likely be the parts manufacturer's standard parts which are already described by a coordinated specification.

How about the parts manufacturer? Should he have

ON NOVEMBER 1, 1960, work was started by ASA under contract with the Bureau of Ships that should represent a long step forward in coordinating industry and government specifications and standards. The work is to provide the Bureau of Ships with an index of those industry standards that it would be possible to substitute for comparable military documents.

The first list of comparable industry and military standards analyzed under this program was published in the February issue of THE MAGAZINE OF STANDARDS (page 57). This month, the second list appears on page 78. Readers of the magazine are invited to send their suggestions on standards that should be studied for the index to W. L. Healy. Mr Healy's address is:

Main Navy Building, Room 3035,
Code 708C,
Washington 25, D.C.

As indicated in the lists of standards already studied, the index will show a comparison of the two documents—industry and military—and will indicate the points or areas of difference. It is hoped that this will help to bring these standards into agreement.

It is also hoped that this work will help to bring about closer liaison between the Bureau of Ships and standardizing groups in industry, and with the American Standards Association.

Those working on the project believe it will represent considerable savings not only to the government but also to industry. The government will benefit by purchasing at market prices and by making use of standards already in the manufacturers' files, saving the cost of printing similar documents. Industry's benefits will be obvious to those who have had to translate military documents into comparable industry standards in connection with a government contract.

As a help in moving this work forward, the American Standards Association has taken steps to submit to sectional committees the analyses of standards under their jurisdiction. Suggestions for proposed changes that would make these standards acceptable to the Bureau of Ships are being placed on the agenda of committee meetings for discussion.

an interest? The parts manufacturer finds himself in these positions:

(1) Because of economic considerations and because the military equipment business is the major portion of all electronics business today, he must make available for sale a line of parts which meets the requirements of any existing coordinated specifications. In most cases, this line of parts will be his standard line. He must further provide test facilities to run the tests called out in the specifications.
(2) He is primarily in the business of manufacturing parts and not in the test business.
(3) He finds that he is asked to supply parts not to just "one" different specification but usually to as many different specifications as he has customers.
(4) He is asked to control his manufacturing and assembly processes closely enough that his parts have an extremely high reliability in operation. This requires continuous production of large quantities of his parts.
(5) He cannot possibly design and manufacture parts to the many varied requirements of his customers' parts specifications; instead, he sells each customer his standard part, marked differently, vibrated differently, life-tested differently, with test samples selected differently. For this, his customer (and the national defense) pays in delayed delivery, added costs, and reduced reliability.

The parts manufacturer, then, has a very real interest in the use of coordinated specifications and the resulting elimination of the varieties of specifications to which he is asked to supply his parts.

Finally, should the military services be interested? The military services find they have very definite interests in the following:

(1) To have some degree of confidence in the performance and reliability of parts used in their end equipments.
(2) To provide a usable cataloging system for all the parts used.
(3) To provide a continuously available supply of the parts to all their installations where the end equipments will be used.

Any procedure or program which will cover these interests, then, and which will result in the smallest variety of suitable parts is the procedure or program in which the military services have the greatest interest. Such a coverage can be found in the use of coordinated specifications.

Why, then, do we find even the military services issuing and using so many single service specifications?

(1) The military services, we must remember, are many times faced with frustrations even greater than industry sometimes must face. It is small wonder, then, that even the military services sometimes feel it is a hopeless task ever to get all military specifications revised as required to bring them up to date.
(2) The military services sometimes feel that their own requirements are not properly understood and appreciated by the other services.
(3) As a result of the burden of work which the too few engineers in the responsible military offices must handle, and even in spite of any established procedure for advising the other services of their work, the military services are oftentimes so dedicated to solving their own problems that they fail to push the "coordination" of the specifications, many of them excellent, which they have written.

It should be clear that no criticism is intended here of the necessity, nor of the advisability at this time at least, of the military services' initially preparing single service specifications. A question is raised here, however, of the adequacy of present plans and procedures for assuring that the many single-service parts specifications will ever be coordinated. In connection with this question, it should be noted that definitive recommendations to solve the problems involved in realizing coordinated specifications for reliable parts have been prepared by a Department of Defense Ad Hoc Study Group on Parts Specification Management for Reliability. It is expected that a final report of this group will be available for consideration within the next few months. Implementation of these recommendations by the Department of Defense and the military services will result in a parts specifications program which will go far in assuring the equipment reliability and cost savings our national defense needs so badly. Unless coordination action is pushed by all three military services under the well-organized and dynamic plan of action recommended by the Ad Hoc Study Group, the military services must find themselves compared side-by-side with those parts users who also insist they must write their own specifications.

Now that we have examined briefly those who should be interested in coordinated specifications, and why, let us look at some of the advantages which will result from use of coordinated specifications as defined and recommended by the Ad Hoc Study Group. The parts user, as we have seen, has a definite interest in such specifications, and for the following reasons:

(1) The use of parts procured to coordinated specifications will eliminate, or greatly reduce, his need to perform the qualification tests of the specification.
(2) The presence of adequate parts cataloging and description in the recommended coordinated specifications will eliminate, or greatly reduce, his need to prepare duplicate information for his procurement and design use.
(3) The use of parts procured to the recommended coordinated specifications will cause procurement to be much easier because standard parts, whose characteristics and reliabilities are known and which have been tested by standard test procedures, will be supplied.
(4) The use of parts procured to the recommended coordinated specifications will increase the assurance that parts will be available for production as a result of the probability that more than one parts manufacturer will be qualified to produce the parts.
(5) The use of parts procured to the recommended coordinated specifications will increase the reliability of his equipment because, as a result of increased production and recommended test and quality control procedures, the parts will have higher and known reliabilities.
(6) It has been estimated that parts users who are building military equipment are spending $160,000,000 each year on parts testing and specification writing. It has further been estimated that, if adequate coordinated specifications were available to the parts users, 50 percent, or $80,000,000 each year, could be saved. If only 10 percent of such savings, or $8,000,000, could be channeled into a parts testing and specification revision program for two years, 90 percent of the present military specifications could be revised to cover 80 percent of the total requirements for parts. The resultant savings of $72,000,000 per year could buy additional equipment or possibly

contribute to a reduction in our defense budget. To the parts user this might well mean an increase in take-home pay.

Advantages for the parts manufacturer in the use of coordinated specifications are in a similar way related to a reduction in the variety of parts:

(1) Selection by the parts user of parts produced to the coordinated specifications will result in a smaller variety and resulting savings on manpower in production and handling.
(2) As a result of the parts user ordering to the coordinated specification, the parts manufacturer will be able to sell his standard part with only one description instead of many. This will simplify his record and accounting system.
(3) The use of coordinated specifications will definitely reduce the piece price of the parts and shorten the delivery time and make the parts manufacturer's position more competitive.
(4) Better process control and larger and more continuous production lots, as a result of procurement to coordinated specifications, will allow the parts manufacturer to make his parts more and more reliable.
(5) The parts manufacturer will be freed from the burden of having to review dozens of specifications which many times are written in such a manner as to require nearly a complete rewriting. Most manufacturers estimate that they expend several thousand manhours per year on this one item. The manpower for this job, in addition, is invariably among the most expensive the company hires because it takes good judgment and years of experience to comment on such specifications realistically. Most companies would be extremely glad to use this talent elsewhere.

As for advantages to the military services, we can repeat several of those just listed for the parts user and parts manufacturer. For example, use of coordinated specifications by the military services:

(1) Reduces piece price of parts and cost of end equipment.
(2) Reduces cost of stocking of parts and maintenance of end equipment.
(3) Increases certainty of having parts when needed.
(4) Increases reliability of the end equipment.
(5) Allows better control of critical materials.

And finally, for the national defense, all these just discussed advantages add up to:

(1) Less complex equipment
(2) Lower cost of equipment
(3) More equipment
(4) More reliable equipment

Can there be any doubt of the action which everyone connected with design, production, or use of military equipment should take with regard to coordinated specifications?

CROSS-INDEXING

Industry and Military Specifications and Standards

Reported by W. L. HEALY

The work currently being done at the Bureau of Ships in Washington under the Bureau's contract with the American Standards Association is progressing and is receiving excellent cooperation. The prime objective of this project is to provide the Bureau with an index of industry standards that could be substituted for the military documents and that could be used by the Bureau for procurement. The index will also contain a comparison of the two documents indicating the points or areas of differences thus setting the basis for bringing them into agreement. It is expected as a result of this work that there will be considerable saving to the Bureau when the standard and more readily procured material is purchased in the market place at market prices instead of purchased as "specials" at premium prices. The initial progress report of this work appeared in the February issue of THE MAGAZINE OF STANDARDS (page 57) and at that time it was proposed that a progress report be given each month. Accordingly, the following is a resume of some of the military standards that have been studied since the last report, together with the comparable industry standards that can be used for the military in whole or in part. *[See also page 76.]*

(1) MIL-I-17166—IRON CASTINGS: NODULAR GRAPHITIC (DUCTILE IRON) (FOR SHIPBOARD APPLICATION)

Specification ASTM A-339-55T, grade 60-45-10, is a substitute for MIL-I-17166. In the industry specification it is the intent to subordinate the chemical composition to physical properties. However, the quantities of any of the chemical elements in the iron may be specified and agreed upon at time of purchase. Any other special requirements, such a sampling, inspection, or packaging, should be indicated in the purchase order.

(2) QQ-N-35—NAVAL BRASS: RODS, BARS, WIRE, SHAPES AND FORGINGS AND FLAT PRODUCTS WITH FINISHED EDGES

ASTM B-21-58T alloys A, B, and C are generally comparable to Federal Specification QQ-N-35 compositions 1, 2 and 3, respectively, and could be used for procurement. The ASTM specification, however, does not cover the requirements for wire and flat products included in Federal Specification QQ-N-35.

The Bureau recommends that QQ-N-35 composition 4 copper 62.0-65.0, tin 0.5-1.0, lead 0.20 max, iron 0.10 max, other elements 0.10 max, and the remainder zinc, be included in ASTM B-21.

The Bureau feels that this brass could be substituted for the first three alloys with superior performance.

Any specific requirements in regard to sampling, inspection, or packaging should be specified in the purchase order.

(3) MIL-B-994—BRASS NAVAL: RODS, WIRE, SHAPES, FORGINGS, AND FLAT PRODUCTS (FLAT WIRE, STRIP, SHEET, BAR, AND PLATE)

ASTM B-21-58 alloys A and B are generally equivalent to MIL-B-994 compositions A and B, respectively. Chemical requirements are comparable; however, there is a slight difference in tensile requirements.

Tensile requirements for drawn shapes should be specified in the purchase order. Also, the purchase order should specify any specific requirements in regard to sampling, inspection, or packaging.

(4) MIL-B-16541—BRONZE, VALVE: CASTINGS

ASTM B61-52 (ASME SPECIFICATION NO: SB-61) is equivalent and could be used for procurement. ASTM B-143-52 alloy 2a is also equivalent and could be used for procurement. The purchase order should specify any special tests required, such as hydrostatic.

The purchase order should also specify any specific requirements in regard to sampling, inspection, and packaging.

(5) MIL-C-895—COMMERCIAL BRASS BARS, PLATES, RODS, SHAPES, SHEETS, STRIPS, FLAT WIRE, AND FORGINGS

ASTM B-21-58 alloy C is equivalent to MIL-C-895 in regard to chemical and physical properties and can be substituted for MIL-C-895 for procurement of bars and rods.

ASTM B124-55 alloy 13 is approximately equivalent to the military specification and can be used for procurement of forgings and shapes.

ASTM B121-55 alloy 6 is equivalent to the military specification and can be used for procurement of brass plate, sheet, and strip.

All special requirements, particularly in regard to sampling, inspection, and packaging, should be included in the purchase order.

(6) QQ-P-416A—PLATING, CADMIUM (ELECTRODEPOSITED)

ASTM A165-55 (American Standard G53.2-1956) types NS, OS and TS are equivalent to Federal Specification QQ-P-416A type 1, classes 1, 2 and 3, respectively, except that Federal Specification class 3 requires .00020-in. thick plating, while ASTM type TS requires only .00015-in. thick.

Also, the Federal Specification provides class II supplementary chromate treatment and class III supplementary phosphate treatment. When thicknesses other than those listed in ASTM A-165-55 are required, they should be specified in the purchase order. Also, when chromate treatment type II is required, ASTM A-201-55T should be specified. When type III supplementary phosphate treatment is required or other requirements, particularly in regard to inspection, are included, they should be specified in the purchase order.

(7) QQ-Z-325—ZINC COATING, ELECTRODEPOSITED, REQUIREMENTS FOR

ASTM A-164-55 (American Standard G53.1-1956) types GS, LS, and RS are equivalent to QQ-Z-325A (type I) classes 1, 2, and 3, respectively, except that Federal Specification class 3 provides for .00020-in. thickness, while the ASTM specification type RS requires only .00015-in. thickness. Also the Federal Specification types II and III provides for chromate treatment and phosphate treatment. These special requirements and any specific tests and inspection requirements should be specified in the purchase order.

(8) QQ-B-671b—BRONZE, ALUMINUM: CASTINGS

ASTM-B-148-52 alloys 9A, 9B, 9C, and 9D, are generally comparable to Federal Specification classes 1, 2, 3, and 4, with the following exceptions:

Alloys 9A and 9B are equivalent to Federal Specification classes 1 and 2 and could be substituted for procurement purposes.

Federal Specification class 3 permits a minimum iron content of 2%, while the ASTM alloy 9C holds minimum at 3%. Federal Specification class 4 has minimum aluminum of 9.8% and ASTM has minimum of 10%. ASTM shows a range of 3.0-5.5% for nickel, while the Federal Specification requires 6.0%. However, the Federal Specification allows the manufacturer the option of either manganese or nickel.

The industry specification, ASTM B-148-52, alloy No. 9C or 9D could be substituted for the Federal Specification classes 3 or 4 by indicating in the purchase order specific chemical requirements when necessary. Specific requirements in regard to sampling, inspection, or packaging should be specified in the purchase order.

(9) MIL-B-16443—BRONZE, MANGANESE: CASTINGS

ASTM B-147-52 alloy 7A is similar to MIL-B-16443 class 1. The federal specification has copper range 55-60%, lead maximum 0.40%, aluminum minimum 0.50%—maximum 1.5%, tin maximum of 1.0%, while the ASTM specification has copper range of 56-62%, tin maximum 1.5%, lead range 0.5-1.5%, aluminum no minimum and a maximum 1.5%. The specifications are approximately equivalent and the ASTM specification could be used for procurement.

Specific requirements, particularly those of sampling, inspection, and packaging, should be indicated in the purchase order.

(10) QQ-A-601b—ALUMINUM ALLOY SAND CASTINGS

ASTM B-26-58T alloys GM70B, ZG32A, ZG42A, and ZG61B are equivalent to Federal Specification QQ-A-601b classes 26, 24M, 25, and 23M, respectively, and can be substituted for procurement. ASTM B-26-58T alloys C4A, GG100A, CN42A, CS43A, CS72A, G4A, G10A, GS24A, S5A, SC51A, SC64D, SC82A, SG70A, ZC81A, and ZG61A, are approximately equivalent to QQ-A-601b classes 4M, 7, 6, 8, 9, 5M, 16M, 27M, 2M, 10M, 18, 20, 3M, 22M, and 17M, respectively. The differences in chemical properties are very slight. These specifications could be used for procurement.

Any special requirements in regard to chemical properties, as well as special requirements in regard to sampling, inspection, and packaging should be indicated in the purchase order.

(11) QQ-M-80—MANGANESE BRONZE BARS, PLATES, RODS, SHEETS, STRIPS, FLAT WIRE FORGINGS, AND STRUCTURAL AND SPECIAL SHAPED SECTION

ASTM B138-58 Rods, Bars, and Strips, alloys A and B are equivalent to and can be substituted for QQ-M-80 classes A and B, respectively. Their chemical and physical properties are comparable. ASTM B-291-58 is a better alloy than QQ-M-80 for sheet and strip since it contains more copper and can be cold rolled to a greater extent. Therefore, ASTM B-291-58 could be used for procurement purposes. ASTM B124-55 alloy 4 is the same as QQ-M-80 class A and could be used for procurement purposes.

Any special requirements particularly in regard to sampling, inspection, or packaging should be indicated in the purchase order.

(12) QQ-N-281a—NICKEL-COPPER-ALLOY (MONGEL AND R-MONGEL) BARS, PLATES, RODS, SHEETS, STRIPS, WIRE FORGINGS, AND STRUCTURAL AND SPECIAL SHAPED SECTIONS

ASTM B-164-58 nickel-copper alloy rod and bar, classes A and B are equivalent to QQ-N-281a classes A and B and can be substituted for the Federal Specification for procurement.

Hot rolled plate, hot and cold rolled sheet, and cold rolled strip covered by ASTM B127-58T are generally equivalent to the Federal Specification QQ-N-281a in regard to chemical and physical characteristics and tolerances.

Any special requirements in regard to sampling, inspection, or packaging should be specified in the purchase order.

A SAFETY MILESTONE
for motor vehicle fleets

by ALFRED C. FINCH

A MILESTONE in development of a more professional approach to accident prevention was reached by the motor transport industry last November 19 with the approval of an American Standard method for measurement of the accident experience of motor vehicle fleets and passengers.

The new standard method of measurement is available in two versions—American Standard D15.1-1960 and American Standard D15.2-1960. The latter covers both motor vehicle accident rates and passenger accident rates. The former (American Standard D15.1-1960) contains only that part of D15.2 which pertains to motor vehicle fleets.

For many years, the accident rate has been employed widely by fleet operators as a yardstick for measuring, from year to year and from month to month, the safety performance of a single fleet of vehicles, or for comparing experience between fleets. Many of the larger trade associations had developed independently their own methods of defining and counting accidents and of computing rates. These methods differed one from another in minor but important respects and made it difficult to compare rates from group to group. With the adoption of the new standard, the motor vehicle fleet and passenger accident rate will become an even more valuable tool of accident prevention at the company level as well as at higher levels.

Under the new standards, a motor vehicle fleet accident is defined as "any occurrence involving a fleet motor vehicle which results in death, injury, or property damage, unless such fleet vehicle is properly parked. Who was injured, what property was damaged or to what extent, where it occurred, or who was responsible is not a factor."

Frequency rate under the new standards is defined as "the number of motor vehicle fleet accidents per million miles." This is a major departure from current usage, which figures accidents per 100,000 miles. This will have the effect of increasing the numerical size of the frequency rate. Many present fractional rates will become whole numbers because old rates, based on 100,000 miles, will be multiplied by ten. Such a multiplication factor will have to be applied to previously established rates when translating them into terms of the new standard.

Another innovation is that collisions between two company vehicles will be counted as two accidents instead of as one.

A motor vehicle fleet passenger accident is defined as "an incident involving a fleet motor vehicle that results in the death or injury of any passenger."

A passenger is defined as "a person, other than the operator thereof, who is in or on a motor bus, trolley coach, or taxicab for the purpose of being transported. Such persons are classified as passengers irrespective of whether compensation for transportation has been or will be paid. Employees of the carrier are not classified as passengers unless they are in the vehicle solely for the purpose of being transported and have no duties or responsibilities with respect to the operation of the vehicle."

Frequency rate of motor vehicle fleet passenger accidents is the number of passenger accidents per 1,000,000 passengers transported.

All industry groups are urged to make prompt and broad use of the new standard method and bring their own accident reporting procedures into conformity with it so that a wider range of comparative data will be made available to the industry. The National Safety Council is already redrafting the rules of the National Fleet Safety Contest in an attempt to bring them into conformity with the D15 American Standards as far as possible and before the start of the 1961-1962 contest in July.

A prime mover in initiating this ASA project was Karl Schulze, senior safety engineer, Standard Oil

MR FINCH is manager of the Motor Transport Department, National Safety Council.

Company of California. As a member of the executive committee of the National Safety Council's Commercial Vehicle Section, Mr Schulze first suggested the development of such a code. The committee adopted this suggestion and moved that the American Trucking Association be invited to co-sponsor the project. This, the ATA agreed to do.

Thirty-three additional organizations agreed to participate in the project and to appoint representatives to serve on the committee. After five meetings over a period of two years and under the able chairmanship of Van Court Lucas, administrative assistant for the American Transit Association, the committee agreed upon a final draft of the standards and forwarded the draft to the American Standards Association on May 4, 1960. On November 29, 1960, the proposed standards were officially approved by the American Standards Association and designated as follows:

American Standard Method of Recording and Measuring Motor Vehicle Fleet Accident Experience, D15.1-1960 (UDC 31:614.-8:656.13)

American Standard Method of Recording and Measuring Motor Vehicle Fleet and Passenger Accident Experience, D15.2-1960 (UDC 31:614.8:656.13)

Copies of these two American Standards are now available at 80 cents each.

NEW STANDARD FOR ALUMINUM CONDUIT

by DIXON LEWIS

Manager, Conduit Product Sales, Rome Cable Division of Alcoa

ALTHOUGH aluminum rigid conduit has been on the market since 1922, there was no pressing need for an industry standard until recently. Dimensionally identical to steel rigid conduit, aluminum conduit was for many years used only for those few applications where the advantage of light weight or corrosion resistance offset the substantially higher price as compared to steel. This situation changed abruptly in 1957 when the cost of aluminum conduit was reduced and made competitive with steel. By 1959, aluminum conduit had come into general use for all types of electrical installations, and the need for an industry standard had become apparent.

Early in 1959, the aluminum conduit manufacturers, acting through a technical subcommittee of The Aluminum Association, approached the American Standards Association for advice and cooperation in the preparation of a standard for aluminum conduit. Since ASA Sectional Committee C80 already had cognizance over "rigid steel conduit," a change in the wording of the committee's scope to read "rigid metal conduit" was a simple means for assigning jurisdiction within ASA. At the same time, representation on the sectional committee was enlarged to include The Aluminum Association. A draft specification was prepared and presented to Sectional Committee C80 on February 20, 1959.

Even though no major problems arose in subsequent deliberations of the committee, the evolution of a simple, workable standard required the assistance and full cooperation of member organizations such as the American Iron and Steel Institute, Underwriters' Laboratories, Inc, and the National Electrical Manufacturers Association. The new American Standard Specification C80.5-1960, Rigid Aluminum Conduit, follows the general pattern of the parallel specification C80.1-1959, Rigid Steel Conduit. The chief difference consists of omission of all references to interior and exterior coatings, such as galvanizing or enameling, which are not required for aluminum. This specification should gradually replace such temporary standards as Interim Federal Specification WW-C-00540 (GSA-FSS).

Aluminum conduit is rapidly finding a secure position in modern electrical construction work.

Undoubtedly, American Standard C80.5-1960 will be extensively merchandised by the aluminum conduit manufacturers and will find its way into the files of architects, consulting engineers, and other specifying agencies. The development and publication of this standard shows how representatives of various and sometimes conflicting interests, working together within the scope of ASA committee activity, can bring progress and lasting contributions to our commercial and industrial standardization.

American Standard C80.5-1960, Rigid Aluminum Conduit, has been published by the American Standards Association and copies are available at 50 cents each.

Are These Cases Work Injuries?

This is the thirty-seventh installment in the current series of rulings as to whether unusual industrial injury cases are to be counted as "work injuries" under the provisions of American Standard Method of Recording and Measuring Work Injury Experience, Z16.1-1954 (Reaffirmed 1959). The numbers in parentheses refer to those paragraphs in the standard to which the cases most closely apply. Decisions on unusual industrial injury cases are issued periodically by the Z16 Committee on Interpretations. Reprints of each double page of cases published in THE MAGAZINE OF STANDARDS can be obtained in quantity from the American Standards Association at $1.50 per 50 copies.

Sectional Committee Z16 is sponsored by the National Safety Council and the Accident Prevention Department of the Association of Casualty and Surety Companies.

INDEX TO CASES 400-800. An index to Cases 400-800 has now been completed. Arranged numerically by the number of the applicable paragraph of American Standard Z16.1-1954 (R1959), the index includes the number of the case indexed and a key letter indicating what the decision was in each case. Each index reference includes a brief description of the case.

Reprints of Cases 400-800, with the index, are now available from ASA at $2.50. Discounts for quantity orders may be obtained on request.

CASE 830 [A1.6 (f)]

An employee requested permission from his foreman to be excused from his work to leave the company premises with his son on a personal errand. Permission was granted, and the employee left the warehouse by a side door, walked to the edge of the warehouse dock, placed one hand on top of the dock, and one foot on top of a bumper strip, and jumped to the ground. As his foot made contact with the ground, a small rock caused him to fall, striking his left knee on the ground. The man left the company property without mentioning the incident to anyone, and he returned to work after completing his personal business.

That afternoon the man mentioned to another employee that his knee was paining him, and explained what had occurred. An hour later he requested permission to go home and put heat on it. He reported to work the next morning although his knee was still paining him. He was directed to see the doctor, who diagnosed the injury as a cracked knee cap. The man lost 12 days from work.

Decision: This injury should be included in the work injury rates in accordance with the ultimate extent of disability, since the employee was injured on his way from his regular work place to the exit from company property and he was still on company property when he was injured.

CASE 831 (1.5)

A company employee attended a credit union business meeting and dinner at a restaurant. On the way home from this meeting a car struck the employee's car, and his injuries resulted in the man's death the following day.

The company had approved the credit union and the participation of employees in the savings and loan service. The union was a separate, chartered organization with officers and members from various departments of the company, all working on a voluntary part-time basis. The meeting and dinner had been scheduled and arranged for by the credit union people, and the company had no official part in the affair except for the adopted policy of permitting the union to function as a unit to work with employees on savings and loan accounts. Attendance at this meeting and dinner was on a voluntary basis, as was attendance at other functions which the employee in question performed as an area representative of the credit union.

Decision: This fatality should not be considered industrial and should not be included in the rates, since the man was not injured during the course of his employment but was voluntarily attending a meeting of the credit union, which was a separate organization and the company had no part in planning the meeting.

CASE 832 [1.5 (c)]

Because a company was located at a busy traffic intersection, the Police Department had authorized certain company guards to direct traffic at the junction of the company driveway and the state highway during hours when the main roads were heavily traveled by employees who were proceeding to and from work. Since payment to these special guards by the Police Department would cause a pay inequity between the special guards and the other guards, the company paid the special guards for their traffic duty, although this work was a function of the Police Department and not a company duty or privilege.

On the day in question, one of the guards was directing traffic at the intersection when one of the cars leaving the company driveway and turning left (north) was struck by an automobile which was traveling south. The second auto spun around after the impact and

struck the guard, knocking him to the pavement. The man sustained a scalp wound and severely sprained ligaments in his right leg. He spent 5 days in the hospital and more time at home, his right leg in a cast from his hip to his toes. The man driving the second auto was not a company employee, was completely at fault for the accident, and stated that he saw neither the special officer nor the traffic until it was too late to stop.

Decision: This case should be considered a work injury and should be included in the work injury rates on the basis that the employee's activity was undertaken with the consent and approval of the employer. This case is quite similar to Cases 449 and 486.

CASE 833 (A5.5)

A night watchman was making his rounds of a warehouse when he was detained at gun point by persons unknown and forced to let these people into the warehouse. He did everything he was asked to do; however, he was shot and wounded anyway during the robbery, and the shot wound was of such a nature that the employee had to be off from work.

Decision: This injury should be included in the work injury rates on the basis that it arose out of and in the course of employment. This decision is based on paragraphs 1.5 (a), 1.6, and A5.5 (examples 3 and 4).

CASE 834 (A5.5)

A road driver was eating his lunch in the cab of the truck on his regular lunch period. Someone unknown stuck a gun in the partially opened window of the cab and asked the driver to turn over all of the money he had. This included money belonging to the company as well as his own personal money. The driver resisted the robber, and in the course of the fight was "pistol whipped" around the face and head. He was hospitalized for observation, and lost four days from work.

Decision: This injury should be included in the rates, since it did arise out of and in the course of the man's employment. This decision is based on paragraphs 1.5 (a), 1.6, and A5.5 (examples 3 and 4).

CASE 835 (5.15)

As part of his job of helping on a veneer lathe, an employee occasionally had to use hand tools such as an axe and a picaroon. In the course of his normal employment, the particular employee used a picaroon to move a core, and in so doing the picaroon glanced off the core, striking the man in the right foot. He almost immediately reported this to his foreman, telling him it was not serious. The foreman urged the man to see a doctor, and gave him the key to the medicine cabinet with the advice to put on a mercurial germicide with a bandage. The foreman tried to impress the employee with the need for getting medical attention to his foot regardless of how minor the injury might seem to be, and also told him to report to work where he would be given lighter work so he could stay off his foot.

The employee returned to work the next day, not having gone to the doctor, and was again told by his foreman and other employees to get medical attention. The man said he would if the foot got any worse, but that it was not particularly sore. He continued to work for a week, and then told his foreman he had been using hot applications on his foot. He had not gone to the doctor up to this time, and the foreman again urged him to do so. The injured man continued to work that day at his regular job with no request for lighter work, and no complaints about his foot. The following day he complained that his foot seemed to be getting a little sore, and there was a little soreness in his back, but apparently he did not see a doctor until the following morning. The employee subsequently died of tetanus in the hospital.

There was no question but that this man had been in the course of his regular employment at the time of the original injury, but the company questioned whether this fatality should be included in the rates since the plant believed it had done everything reasonably possible to have the man properly taken care of by a qualified doctor.

Decision: This fatality should be included in the frequency and severity rates since the injury definitely arose out of and in the course of employment, and resulted in death. The fact that the man refused medical attention may have been a contributing factor in the extent of disability, but does not affect the classification of this case as work-connected.

CASE 836 [5.1 (a)]

A plywood patcher, in the performance of his regular job duties, turned a ⅜-in. plywood panel around in order to patch the opposite end in the same manner as he had done many, many times over the past several years. On this specific occasion he felt a sharp pain in the left groin. He left his work area to discuss this incident with his foreman, and while talking with him suffered another sharp pain in the same region. He was sent by his foreman to the industrial nurse, who made an appointment for an examination by the doctor. The doctor diagnosed the condition as an industrial left inguinal hernia, and returned the man to work with precautionary measures, advising surgery in the near future.

The doctor felt this was an industrial hernia as the employee told him he had suffered the pain while at work. But the company questioned whether the incident met the requirements of paragraph 5.1 (a) since there had been no sudden effort or overexertion involved.

Decision: The hernia described should be considered a work injury and should be included in the work injury rates in accordance with the ultimate extent of disability. There was no question that the case met the requirements of 5.1 (b) and (c); the only question was with regard to paragraph 5.1 (a). Although this employee did not suffer a slip, trip, fall, or sudden effort, the real problem was the interpretation of the two additional terms "severe strain" and "overexertion."

The committee realizes that there is no effective way to measure either "strain" or "exertion" and it would, therefore, be futile to define either of these terms in absolute values. In this particular case the employee was doing a manual task involving some degree of exertion, and since the doctor believed that the onset of the hernia could be associated with the strain or exertion involved in this specific activity, the activity did constitute severe strain or overexertion for this particular individual at that particular time.

CASE 837 (1.1)

A rodman in the field engineering group was assigned a surveying job out in the harbor. The boat was a small craft powered by an outboard motor. During the course of his work the man became ill, and was sent to the medical department where his condition was diagnosed as motion illness. None of the other men working with him in the boat became ill.

This particular employee lost no time from work as a result of his illness, but because this case set a precedent in the company's experience, they asked whether it should be considered as arising out of and in the course of the man's employment, and whether any such future disabilities should be considered as work-connected if lost time resulted from such an experience.

Decision: Because this particular employee did not lose any time from work, this should be considered a medical treatment case. Since the medical department diagnosed the case as motion illness, and this had developed in connection with the man's work, it should be considered as having arisen out of and in the course of employment. If time had been lost due to this motion illness, the case would be included in the work injury rates.

STANDARDS FROM OTHER COUNTRIES

Members of the American Standards Association may borrow from the ASA Library copies of any of the following standards recently received from other countries. Information about those standards not selected for listing in THE MAGAZINE OF STANDARDS may also be obtained from the ASA Library. Orders for these standards may be sent to the country of origin through the ASA office. Titles are given here in English, but documents are in the language of the country from which they were received. For the convenience of readers, the standards are listed under their general Universal Decimal Classification number. In ordering copies, please refer to the number following the title.

389 METROLOGY. WEIGHTS AND MEASURES

Egypt (EOS)

Units and quantities EOS/S 28

Germany (DNA)

Inch-millimeter conversion table from 1 to 1,000 micro-inches DIN 4892

USSR

Standard linear dimensions GOST 6636-60

534 ACOUSTICS

Czechoslovakia (CSN)

Standard tuning frequency CSN 01 1610

Germany (DNA)

Protection against air-borne and footstep noise in buildings DIN 52210

535 OPTICS, LIGHT

Czechoslovakia (CSN)

Prismatic binoculars CSN 19 3110
Standard scales of optical instruments CSN 19 0510

Germany (DNA)

4 stds for optical bench and slider DIN 58110/3

621.3 ELECTRICAL ENGINEERING

Australia (SAA)

Approval and test specification for Edison-type screw lampholders C.140-1960
Approval and test specification for thermostats C.161-1960
Approval and test specification for domestic electric food mixers C.162-1960
Dimensions of switchboard panels (mineral-base type) C.88-1960

Canada (CSA)

Specification for indoor high-potential full-load air interrupter switches C105-1960

Czechoslovakia (CSN)

Starting electrolytic capacitors CSN 35 8351

Germany (DNA)

Round relays, dimensions and technical data DIN 41221
2 stds for polarized electrolytic capacitors, 250 and 350 v, for printed circuits DIN 41318/9
2 stds for electronic tubes: duodecal base and gage DIN 41536
2 stds for electronic tubes: octal base and gage DIN 41556
4 stds for trimmer capacitors, type A, B, C DIN 41950/1
Preferred ratings of electrical machines DIN 42973
Indicating instruments for distribution panels, dimensions of front frame DIN 43718
Ignitrons, sizes B, C, and D, dimensions DIN 44411
Loudspeakers, definitions, symbols, units DIN 45570
Microphones, definitions, symbols, units DIN 45590
Microphones, properties and data sheets DIN 45593
Flat strip for 2 to 12 connection terminals DIN 46280
Clamp and binding post for overhead power line DIN 48215
Two-pin sockets, 250 v, 10 and 15 amp DIN 49402
Three-pole and grounding contact plug with angular cross section pins, 15 amp, 380 v DIN 49449
2 stds for two-pin appliance connectors, 6 and 10 amp, 250 v, with safety contact DIN 49491,-494
23 stds for different sizes of D-type fuse-bases for front and back connections DIN series 493
Radio-interference preventive chokes DIN 41262
Rating plates for electric machines DIN 42961
Electric trains, nomenclature of h.v. apparatus DIN 43101
Switchgear, designation of terminals DIN 46199

India (ISI)

Ballasts for fluorescent lamps for switch start circuits IS:1534(Part I)-1960
Glossary of terms for electrical cables and conductors IS:1591-1960
Metric sizes of copper wires and conductors for electrical purposes IS:1594-1960
Electrical apparatus comprising resistors IS:1565-1960
Metal-clad switches IS:1567-1960

Israel (SII)

Fixed terminals for connecting electric conductors S.I. 344
5 stds for different porcelain insulators for overhead lines, up to 1,000 v S.I. 345/9
5 stds for different types of pins and ferrules for overhead-line porcelain insulators S.I. 350/4
Gage for testing insulator pin threads S.I. 355

Japan (JISC)

Three-phase squirrel-cage motors for textile machines JIS C 4206
2 stds for variable carbon resistors JIS C 6443/4
20 stds for steel conduits and fittings for wiring JIS C 8330/49
Lampholders, bayonet type JIS C 8350

Turkey (TSE)

Lead storage batteries TS 12-1959
Dry cells and batteries TS 13-1959
Electrolytic copper wire, solid, medium hard TS 17-1960
Electrolytic copper wire, solid, annealed, soft TS 18-1960

United Kingdom (BSI)

Method for the measurement of voltage with sphere gaps (one sphere earthed) BS 358:1960
Specification for tubular fluorescent lamps for general lighting service BS 1853:1960
Specification for insulator and conductor fittings for overhead power lines. Performance and general requirements BS 3288:Part 1:1960

USSR

Batteries of dry galvanic cells for pocket flash-lights GOST 2583-60
Electrical fittings (accessories). Silicate glass products. Connecting dimensions GOST 9503-60
Brushes for electrical machines. Test methods GOST 9506-60
Incandescent lamps for general illumination purposes GOST 2239-60
Long-distance low-frequency electric cables GOST 5008-60

621.86 MECHANICAL HANDLING AND HOISTING EQUIPMENT

Canada (CSA)

Safety code for elevators, dumbwaiters, and escalators B44-1960

643 HOUSEHOLD EQUIPMENT

Canada (CSA)

Domestic gas ranges (free-standing units) B150.1-1961
Domestic gas ranges (built-in domestic cooking units) B150.2-1961

France (AFNOR)

2 stds for testing and control of household gas-using equipment NF D 30-501/2
Gas water heaters NF D 35-321

Hungary (MSZH)

Household gas plates and ranges. Technical requirements and test methods MSZ 8601
4 stds for household electric cooking utensils MSZ 20872/5

India (ISI)

Wrought aluminum utensils IS:1660-1960

667.6/.8 PAINTS, VARNISHES, LACQUERS

Ireland (IIRS)

Undercoating varnish (natural resin) I.S. 10:1960
Finishing varnish (natural resin) I.S. 103:1960
Finishing exterior varnish (synthetic resin) I.S. 104:1960

Israel (SII)

Pigments for paints: Manufactured iron oxide S.I. 334

Netherlands (NNI)

Solvents and diluents for the paint industry NEN 3053(1960)

Union of South Africa (SABS)

Code of practice for the preparation of steel surfaces for painting SABS 064-1960
Primer and enamel paint for hospital furniture SABS 663-1959
Finishing paint, aluminum type SABS 682-1959
Structural steel paint SABS 684-1959

USSR

Hard coal varnishes GOST 1709-60
Paris green (Schweinfurt green) GOST 105-60
Organic direct dyes (fast light violet 2K, fast light gray C) GOST 9528-60
Lacquers and paints. Photometric method for determination of tinting strength of white pigments GOST 9529-60
Organic acid dyes (yellow K, scarlet 2J, dark blue) GOST 9530-60

669 METALLURGY

Australia (SAA)

Charts for approximate comparison of hardness scales for steels B.161-1960
Methods for the analysis of iron and steel. Manganese in iron and steel K.I.-Part 14-1960

Canada (CSA)

Specification for structural steels with improved resistance to brittle fracture G40.8-1960

Czechoslovakia (CSN)

Structural steel 11483 CSN 41 1483
Structural steel 11523 CSN 41 1523
Structural steel 11583 CSN 41 1583

Denmark (DS)

Aluminum and aluminum alloys; ingots; survey DS 15000, second ed.
Aluminum alloy with 4 percent magnesia; ingots for casting DS 15204
Aluminum alloy with 5 percent magnesia and 1 percent silicon; ingots for casting DS 15252, second ed.
Aluminum alloy with 13 percent silicon; ingots for casting DS 15502

France (AFNOR)

Photocolorimetric method for the determination of phosphoric anhydride content in slags NF U 42-108
Testing for nickel content in steels and cast iron NF A 06-307
Blast gates and fittings NF A 72-111
Aluminum and aluminum alloy gravity cast pieces NF A 57-702

Germany (DNA)

Testing of steel for magnetic properties of electric steel sheets in 25-cm Epstein frame: general, preparation of test piece DIN 50462
Wrought magnesium alloy DIN 1729
Cast magnesium alloy for sand, case, and pressure casting DIN 1729
Wrought magnesium alloys, semi-finish, testing for mechanical properties of DIN 9715
Magnesium for foundry work DIN 17800
Steel hollow sections, cold-rolled, for door frames DIN 18112

India (ISI)

Chemical analysis of pig iron, cast iron, and plain carbon and low-alloy steels IS:228-1959
Mild- and medium-tensile steel bars and hard-drawn steel wire for concrete reinforcement IS:439-1960
Ferro-vanadium IS:1466-1960
Ferro-phosphorus IS:1471-1960
Chemical analysis of printing metals IS:1345-1960
Silico-manganese IS:1470-1960
Cadmium plating IS:1572-1960
Rockwell hardness test (B and C scales) of steel IS:1586-1960

Japan (JISC)

7 stds for stainless steel wire, rods, sheets, cold- and hot-rolled JIS G 4303/9

Mexico (DGN)

Bronze ingots for sand casting B-16-1960
Silver pieces, tooled B-23-1960
Copper, electrolytic, for cathodes B-27-1960
Brass ingots and castings B-49-1960
Pig iron ingots B-7-1960
Galvanized iron or steel sheets B-9-1960
Barbed wire, galvanized, iron or steel B-22-1960
Carbon steel ingots B-46-1960
Steel boiler plates B-106-1959

Union of South Africa (SABS)

Standard specifications for white metals SABS 695/703-1959

United Kingdom (BSI)

Methods for the analysis of iron and steel. Lead in carbon steel and low-alloy steel BS 1121:Part 41:1960
Specification for electroplated coatings of cadmium and zinc on iron and steel BS 1706:1960
Methods for the analysis of copper alloys. Tin (nickel coil reduction method) BS 1748:Part 6:1960
Methods for the analysis of copper alloys. Silicon (photometric method) BS 1748:Part 7:1960
Methods for the analysis of copper alloys. Phosphorus (photometric method) BS 1748: Part 8:1960
Specification for steel columns for street lighting BS 1840:1960
Procedures for obtaining properties of steel at elevated temperatures. Proof stress BS 3228:Part 1:1960
Specification for ingot tin BS 3252:1960
Specification for galvanized mild-steel wire for armouring cables BS 1442:1960

USSR

Cold-rolled tinplate in sheet form of hot tinning GOST 9488-60
Lead-calcium bearing alloys. Methods of chemical analysis GOST 1219-60
Blister copper GOST 9475-60
Aluminum ingots for rolling GOST 9498-60

676 PAPER AND PULP INDUSTRY

Egypt (EOS)

Paper EOS/S 13

Germany (DNA)

3 stds for paper for offset printing. Sizes, grades DIN 6725/7

India (ISI)

Carbon paper for typewriters IS:1551-1959
Blotting paper IS:1396-1960
Kraft paper IS:1397-1960
Packing paper, waterproof, bitumen laminated IS:1398-1960

Japan (JISC)

Sulfite pulp for paper JIS P 2101-1953*
Kraft pulp for paper JIS P 2102-1953*
Ground-wood pulp for paper JIS P 2103-1953*
*Available in English

United Kingdom (BSI)

Specification for papers and boards BS 730:1960
Specification for prepared and natural tracing paper BS 1340:1960

USSR

Paper for cigarettes GOST 3479-60
Cardboard for footwear GOST 9542-60

• NEWS BRIEFS

• EGYPTIAN line standards of length, made of basalt with divisions accurate to one centimeter, and 5,000 years old, are evidence of the Middle East's heritage of modern industrial standards. John R. Townsend, president of ASA, speaking at the Middle East Conference on Standardization held in Cairo, Egypt, January 30-February 5, described the evolution of standards from Egyptian brickmaking to their complex structure and fundamental significance in the U.S. industrial scene. Mr Townsend attended as the technical representative of the U.S. Department of Commerce and consultant to the director, National Bureau of Standards, and as representative of the American Standards Association. Dr Ruby K. Worner, visiting Fulbright Lecturer and Consultant at the University of Alexandria, Egypt, was also an accredited ASA delegate, and presented a paper on textile test methods.

• AMONG discussions of new laundry equipment for home use, new textiles compared with old, and what is a launderable fabric, standards had a place on the program of the Fourteenth National Home Laundry Conference. Sponsored by the American Home Laundry Manufacturers Association, the conference was held in San Francisco, California, November 3-4, 1960. Home economists in education, business, and government attended. Teachers, editors, equipment and supply companies and utilities, the Agricultural Extension Service, and company members of the manufacturers association itself, were represented.

The mandatory labeling standard for identification of textile fibers—the Textile Fiber Products Identification Act—and the voluntary standard performance requirements for various types of textiles—American Standards L22—were explained by Arthur R. Wachter of the American Viscose Corporation.

The fiber identification act, now covering the entire textile field, was designed to protect the consumer from false and deceptive labeling and advertising, Mr Wachter said. It recognizes the consumer's right to know what he is getting for his money. Under the act, Mr Wachter explained, "the facts on fiber content, expressed in percentages, must stay with textile products through all the steps of production. This . . . covers textile articles from the fiber or yarn form all the way through to the completed consumer article." If consumer articles do not contain the necessary labels, or are incompletely or inaccurately labeled, it is the responsibility of the retailer to correct the situation before offering them for sale. As soon as consumers understand what Congress has provided for them in this "truth-in-fabrics" legislation, they will expect and demand properly labeled merchandise when shopping for textile products, Mr Wachter believes.

However, because labeling under the fiber identification act does not give any indication of expected performance of the finished fabrics, truth in textile labeling "continues as an unreached goal for the American consumer." In explanation of this, Mr Wachter cited Canadian and British legislation requiring truth in labeling, which makes no reference to fiber identification or fiber percentages. Instead, Canadian and British laws require that labels answer questions always in the consumer's mind—can I wash it or do I dry clean it? If I put it in my washer, do I push the warm, hot, or cold button? Do I iron it, or is it ready to wear after tumble drying? Is it colorfast to any kind of laundering and will it resist excessive shrinkage?

In the United States, the L22 standards are the tool to provide this same information and a lot more, Mr Wachter told the conference. These standards were developed under the procedures of the American Standards Association and with the "splendid cooperation of scientists and technicians from the textile industry—including all the yarn manufacturers, weavers, knitters, dyers, finishers, and converters—from the distribution industry and from consumer groups."

"The selection of merchandise by the retailer is too often based on guesswork or personal preferences and opinion, as well as price," Mr Wachter commented. "If the textile industry presents to the retailer articles manufactured from fabrics tested according to American Standards L22 for specific end uses, it is eliminating guesswork and introducing a scientific base. These standards will enable a garment manufacturer to obtain textile materials that are exactly suited to the end use he has in mind."

Pointing out that conformance to L22 standards not only benefits the consumer but has other important advantages as well, Mr Wachter said: "It provides the means for factual informative labeling, which requires knowing more about the quality and use characteristics of merchandise sold. It makes this knowledge available to consumers and develops facilities for a closer and more effective contact with consumers."

• AN INTERNATIONAL SYMPOSIUM on standardization of surface treatments of metallic materials is being held at Turin, Italy, in October of this year. The symposium will give special attention to standardization of testing methods, production methods, working schedules, and thicknesses of coatings. It is being sponsored by the Commission on the Technique of Standardization in Precision Mechanics, Optics, Photography, and Allied Industries (UNIPREA), and will be held during celebrations commemorating the first centenary of Italian unity.

The Italian national standards body, UNI, believes the symposium may lead to organization by the International Organization for Standardization of a technical committee concerned with surface treatments of metallic materials.

• WITH the January 1961 issue, the *ASTM Bulletin* became *Materials Research and Standards*. The magazine will now be issued monthly.

The *Bulletin* started as a 4-page publication, issued at "approximately quarterly intervals," in April 1921, nearly 40 years ago. By 1940, the *Bulletin* had grown to 64 pages, and in July 1949 it was first issued on an 8-times-per-year basis.

As the editors point out in announcing the new name and status, 1921 was the first full year of operation for the nation's first commercial radio broadcasting station, Westinghouse's KDKA, in Pittsburgh. Looking forward to the next 40 years, the editors comment: "One is tempted to set up the proportion: first radio broadcast is to Echo satellite as Echo satellite is to *X*. But who among us would have the audacity to solve for *X*?"

• COMMITTEE E-12 of the American Society for Testing Materials has undertaken work on standards for carbon paper and typewriter ribbons. The purpose is: (1) to compare methods now being used to evaluate the appearance of the printed copy made by carbon paper and typewriter ribbons; (2) to determine whether improvements and new features are required; and (3) to prepare standard test methods for evaluating the color, density, sharpness, and other properties affecting the appearance of the printed copy.

• SOME 45 committees, subcommittees, and working groups will hold meetings during the General Meeting of the International Electrotechnical Commission this year. The meeting is being held June 19-30 at Interlaken, Switzerland. Technical advisors to the United States National Committee of IEC are already working to codify U.S. viewpoints for presentation at the meeting, and to arrange for representation at the various technical committee and subcommittee meetings.

• THE AMERICAN Institute of Electrical Engineers has presented the Edison Medal for 1960—its highest honor—to Dr H. S. Osborne. Dr Osborne was vice-president of the American Standards Association from 1949-1951, and chairman of ASA's Standards Council from 1942-1945. He was active in national and international work on standards for many years, having served as president of the U.S. National Committee of the International Electrotechnical Commission, and from 1952-1955 as president of the IEC itself. He attended the recent IEC meeting in India as an IEC past-president.

Dr Osborne spent his entire career with the American Telephone and Telegraph Company, from 1910 until his retirement in 1952. He had been chief engineer since 1943.

Dr Osborne has been active in AIEE for many years. He was president in 1942-43, and has been a member and chairman of a number of committees. He has been chairman of the Board of Trustees of the Volta Memorial Fund since 1949. He is a Fellow of AIEE, the Acoustical Society of America, the American Physical Society, the American Association for the Advancement of Science, and the Institute of Radio Engineers. He has also been active on the Engineers Joint Council. He is author of some 30 publications in the field of communications and municipal planning.

• THE INTERNATIONAL Organization for Standardization has announced approval of a new ISO Recommendation, ISO/R 170-1960, Anchor Chains, Stud Links (Common Links, Enlarged Links, End Links, and Joining Shackles). The recommendation was developed by ISO Technical Committee 8, Shipbuilding Details. It is being published by the ISO General Secretariat at Geneva, Switzerland.

DO YOU KNOW AN EXECUTIVE who has shown outstanding appreciation and support of standardization as a tool of management? Or someone who has made outstanding contributions to the philosophy of the American Standards Association and to development and application of standards at company or industry levels.

Perhaps these individuals qualify for national recognition for these services. If so, now is the time to nominate them for award of The Howard Coonley Medal or The Standards Medal.

These medals are presented during the National Conference on Standards each year.

SEND YOUR NOMINATIONS NOW

For the Howard Coonley Medal

The Howard Coonley Medal is awarded "To recognize outstanding appreciation and support of voluntary standardization as a tool of management through which creative abilities may be released from routine operations, and to emphasize to the business community the importance of such use of standardization by management at high executive levels."

For the Standards Medal

The Standards Medal recognizes long, devoted and effective service to standardization, and is made "In recognition of outstanding contributions to the philosophy of the American Standards Association and its application to voluntary standardization at the national level as well as the constructive development and application of standards and standardization at either company or industry levels."

Write for forms and instructions. Closing date for nominations is April 24.
Address: American Standards Association, 10 East 40th Street, New York 16, N. Y.

• R. P. ANDERSON, former secretary of the American Petroleum Institute's Division of Refining, New York, died November 26, 1960. Dr Anderson was chairman of ASA's Standards Council in 1940-41, and was a member of ASA's Board of Directors. He served as secretary of ASTM's Committee D-2, Petroleum Products and Lubricants, from 1925 to 1945. In recognition of his long and faithful service, the committee elected him to honorary membership in 1945.

• IT HAS JUST come to our attention that the American Standard for Street and Highway Lighting, D12.1-1953, figured in the presentation of a *Reader's Digest* Public Service Award during the summer of 1960. The award was bestowed on the Detroit Edison Company for planning, developing, and installing modernized lighting for 6 of 15 incorporated cities and towns meeting the requirements of the standard.

Commenting on the "nation's poorly lighted streets and highways" recently, Edmond C. Powers, education director of the Street and Highway Safety Lighting Bureau, estimated that "proper lighting would save 12,000 lives on the nation's highways during the first year it was in effect." "The economic saving would exceed $3 billion a year," he said. Proper lighting, it was explained, means lighting that meets minimum levels of illumination set by the American Standards D12.1-1953.

• JACK F. EDEN has joined the staff of the American Standards Association as a writer in the Public Relations Department.

During 1960, Mr Eden handled industrial and tourist publicity for the Government of Mexico at Mexico City. Prior to that, he had been employed as a press information writer in the Public Relations Department of American Telephone & Telegraph Company. Mr Eden will assist Kenneth G. Ellsworth, director of public relations.

R. T. Wright, director of the New Zealand Standards Institute (right) welcomes S. David Hoffman, American Standards Association, to the Institute's offices. Mr Hoffman visited New Zealand on his way to India to attend the general meeting of the International Electrotechnical Commission. Mr Hoffman is in charge of ASA's electrical engineering department, and is secretary of the Electrical Standards Board and the U.S. National Committee of IEC. Under Mr Wright's guidance he visited the staff of the New Zealand Standards Institute and discussed standards problems of mutual interest.

New Books . . .

OFFICIAL CLASS B PRODUCT LIST AND PRODUCT ASSIGNMENT DIRECTORY. *October 1, 1960. U.S. Department of Commerce. Copies available from Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C., or from any U.S. Department of Commerce Field Office. 70 cents.*

Code numbers of various items have been changed in this revised edition to conform to the latest edition of the Standard Industrial Classification Manual issued by the Bureau of the Budget. Also, some of the items have been redesignated, and a few changes have been made in the assignment of products to industry divisions of the Business and Defense Services Administration, U.S. Department of Commerce.

This list assures the Department of Defense, the Atomic Energy Commission, and the National Aeronautics and Space Administration of priorities over civilian purchases in procurement of materials and supplies needed in their production, construction, and research and development programs. Definitions of both Class A and Class B products are included. The publication also includes the revised list of controlled materials contained in DMS Regulation No. 1, which was amended December 1, 1959. A list of the authorized defense program and the program identification symbols which are required to be used in connection with priority orders are also included.

TEXTILE HANDBOOK. *Prepared by chairmen and members of the textiles and clothing section of the American Home Economics Association. 1960. First edition. 116 pp. 7 x 10 in. Heavy paper cover. American Home Economics Association, 1600 Twentieth Street, N.W., Washington 9, D.C. $1.25.*

Information concerning the properties of the different textiles, natural or man-made, which will give consumers and home economists a better understanding of the fabrics with which they work, is given in this handbook. The latest information on American Standards in the field of textiles is included, as well as a discussion of the work on textiles of the International Organization for Standardization.

"The need for a readily available, easily used handbook of textiles has become increasingly apparent as textiles themselves have become more complex and more varied," the handbook preface explains. "This handbook by home economists is designed to meet that need."

The Association recognizes the wealth of excellent materials in textbooks and in publications from many branches of the textile industry, but explains that the purpose of the handbook is to bring together in one moderately priced source the kind and amount of material that will be of most value to consumers, to home economists working with consumers, and to students. This first edition covers the whole field of textiles—fibers, yarns, fabric construction, finishes, dyes, fabric definitions, maintenance of textiles, standards, legislation, and labeling, with their significance to the consumer.

NATIONAL ELECTRICAL CODE HANDBOOK: BASED ON THE 1959 EDITION OF THE NATIONAL ELECTRICAL CODE. *Revised by Frank Stetka. Tenth edition. 679 pp. 5¾ x 8. 387 illustrations. 53 tables. McGraw-Hill, 327 West 41 Street, New York 36, N.Y. $8.50.*

Facts on how to handle all types of electrical wiring and installation jobs in

strict accordance with the latest National Electrical Code (American Standard C1-1959) are presented in this edition. It explains rules and measurements for electrical jobs—what they mean and how to apply them. The book follows the same numbering system as presented in the code, providing easy reference to any rule. Next to the rule, in a contrasting typeface for ease of reference, is found its meaning, intent, and interpretation where applicable.

This edition was prepared under the supervision of the National Fire Protection Association, sponsor for the National Electrical Code.

Important new features in this tenth edition include reorganization in line with the rearrangement and renumbering of the National Electrical Code, and numerous important changes in basic requirements. The Handbook also gives modern examples of how to calculate electrical load, number of branch circuits, and size of feeders.

The author, Frank Stetka, is electrical field engineer for the NFPA. He is also secretary of the NFPA Correlating Committee, and code consultant to the International Association of Electrical Inspectors.

NEW INTERNATIONAL RECOMMENDATIONS

ISO Recommendations are published by the International Organization for Standardization, and IEC Publications by the International Electrotechnical Commission, Geneva, Switzerland. Copies are available from ASA.

COMMON NAMES FOR PESTICIDES. FIRST LIST. *ISO R 116. August 1959. First edition.* $2.10.

EXPRESSION OF THE PHYSICAL AND SUBJECTIVE MAGNITUDES OF SOUND OR NOISE. *ISO R 131. September 1959. First edition.* $0.90.

DETERMINATION OF RESISTANCE TO FLEX CRACKING OF VULCANIZED NATURAL OR SYNTHETIC RUBBER (DE MATTIA TYPE MACHINE). *ISO R 132. September 1959. First edition.* $1.50.

DETERMINATION OF RESISTANCE TO CRACK GROWTH OF VULCANIZED NATURAL OR SYNTHETIC RUBBER (DE MATTIA TYPE MACHINE). *ISO R 133. September 1959. First edition.* $1.20.

NON-SCREWED STEEL TUBES FOR GENERAL PURPOSES. *ISO R 134. September 1959. First edition.* $0.90.

PAPER VOCABULARY. SECOND SERIES OF TERMS. *ISO R 135. October 1959. First edition. Terms and definitions in English, French, and Russian.* $4.20.

TEXTILE MACHINERY AND ACCESSORIES. PIRN WINDERS AND CROSS WINDERS. DEFINITION OF SIDE (LEFT OR RIGHT). *ISO R 141. January 1960. First edition.* $0.60.

TEXTILE MACHINERY AND ACCESSORIES. WEAVING PREPARATORY MACHINES. DEFINITION OF SIDE (LEFT OR RIGHT). *ISO R 142. January 1960. First edition.* $0.60.

LIMITING VALUES FOR THE ADJUSTMENT OF CENTERS FOR TRANSMISSION OF PULLEYS. *ISO R 155. March 1960. First edition.* $0.60.

COMPOSITION OF ALUMINUM ALLOY CASTINGS. *ISO R 164. July 1960. First edition.* $0.90.

AMERICAN STANDARDS

Just Published . . .

If your company is a member of the American Standards Association, it is entitled to receive membership service copies of these newly published American Standards. The ASA contact in your company receives a bimonthly announcement of new American Standards, which also serves as an order form. Find out who your ASA contact is and order your American Standards through him. He will make sure your company receives the service to which it is entitled.

CINEMATOGRAPHY

Transmission Density of Motion-Picture Films, Method of Determining, PH22.27-1960 (Revision of PH22.27-1947) $0.40

Reel Spindles for 16mm Motion-Picture Projectors, PH22.50-1960 (Revision of PH22.50-1946) $0.40

Gives dimensions and tolerances for sound section, square section, cumulative effect of eccentricity, and reel position on spindles.

Cross-Modulation Tests for 16mm Variable-Area Photographic Sound Prints, PH22.52-1960 (Revision of PH22.52-1954) $0.40

Describes the cross-modulation method of measuring high-frequency distortion introduced during the processing of 16mm variable-area sound motion-picture release prints.

9-kc Sound Focusing Test Film for 35mm Motion-Picture Sound Reproducers, PH22.62-1960 (Revision of PH22.62-1948) $0.40

Describes a film which may be used for precise focusing of the optical systems in 35mm motion-picture sound reproducers.

1000-Cycle Balancing Test Film for 35mm Motion-Picture Sound Reproducers, PH22.67-1960 (Revision of PH22.67-1948) $0.40

Describes a film which may be used for balancing the respective power-level output from two or more 35mm motion-picture sound reproducers.

Sound Records and Scanning Area of 35mm Double-Width Push-Pull Sound Prints, Normal Centerline Type, PH22.69-1960 (Revision of PH22.69-1948) $0.40

Specifies the location and width of normal centerline type sound records and the scanning area of double-width push-pull sound prints.

Sound Records and Scanning Area of 35mm Double-Width Push-Pull Sound Prints, Offset Centerline Type, PH22.70-1960 (Revision of PH22.70-1948) $0.40

Specifies the location and width of offset centerline type sound records and the scanning area of double-width push-pull sound prints.

Spectral Diffuse Density of Photographic Sound Record on Three-Component Subtractive Color Films, PH22.117-1960 (Supplements to PH2.19-1959 and PH2.1-1952) $0.40

Sponsor: Society of Motion Picture and Television Engineers

ELECTRIC AND ELECTRONIC

Rubber and Thermoplastic Insulated Wire and Cable, Methods of Testing, ASTM D 470-59T; ASA C8.22-1960 (Revision of ASTM D 470-52T; ASA C8.22-1954) $0.50

Procedures for testing subject wire and cable for physical and electrical prop-

erties. To determine the test to be made on a particular wire or cable, refer to the product specification for that type.

Natural Rubber Sheath for Wire and Cable, Specification for, ASTM D 532-58; ASA C8.25-1960 (Revision of ASTM D 532-49; ASA C8.25-1954) $0.30

Physical requirements for subject sheath for wire and cable for service at temperatures not lower than —50 C.

Natural Rubber Heat-Resisting Insulation for Wire and Cable, 75 C Operation, Specification for, ASTM D 469-58; ASA C8.27-1960 (Revision of ASTM D 469-52T; ASA C8.27-1954) $0.30

Physical and electrical requirements for subject insulation for applications not exceeding 2,000 v.

Styrene-Butadiene (SBR) Synthetic Rubber Sheath for Wire and Cable, Specification for, ASTM D 866-58; ASA C8.28-1960 (Revision of ASTM D 866-46T; ASA C8.28-1954) $0.30

Physical requirements for subject sheath for wire and cable for service at temperatures not lower than —35 C.

Ozone-Resisting Insulation for Wire and Cable, Specification for, ASTM D 574-59T; ASA C8.29-1960 (Revision of ASTM D 574-46T; ASA C8.29-1954) $0.30

Physical and electrical requirements for subject wire and cable suitable for transmission and distribution at conductor temperatures not exceeding 75 C at 8,000 v or less, and not exceeding 70 C at over 8,000 v.

General-Purpose Neoprene Sheath for Wire and Cable, Specification for, ASTM D 753-60; ASA C8.31-1960 (Revision of ASTM D 753-49; ASA C8.31-1954) $0.30

Physical requirements for subject sheath for wire and cable for service at temperatures not lower than —25 C and where extreme abrasion resistance is not required.

Heavy-Duty Black Neoprene Sheath for Wire and Cable, Specification for, ASTM D 752-60; ASA C8.32-1960 (Revision of ASTM D 752-49T; ASA C8.32-1954) $0.30

Physical requirements for subject sheath for wire and cable for heavy-duty service at temperatures not lower than —25 C.

Ozone-Resisting Butyl Rubber Insulation for Wire and Cable, Specification for, ASTM D 1352-60; ASA C8.37-1960 $0.30

Physical and electrical requirements for subject insulation for wire and cable suitable for operation at conductor temperatures up to 80 C and voltages up to 28,000 v.

Synthetic Rubber Heat- or Moisture-Resisting Insulation for Wire and Cable, Specification for, ASTM D 1520-60; ASA C8.38-1960 $0.30

Physical and electrical requirements for subject insulation for wire and cable suitable for operation at conductor temperatures up to 75 C in dry locations and 60 C in wet locations, and at operating voltages not exceeding 5,000 v.

Synthetic Rubber Performance, Moisture-Resisting Insulation for Wire and Cable, Specification for, ASTM D 1521-60; ASA C8.39-1960 $0.30

Physical and electrical requirements for subject insulation for wire and cable suitable for operation at conductor temperatures up to 60 C and at operating voltages not exceeding 5,000 v.

Synthetic Rubber Insulation for Wire and Cable, 90 C Operation, Specification for, ASTM D 1523-60; ASA C8.40-1960 $0.30

Physical and electrical requirements for subject insulation for wire and cable suitable for operation in dry locations with operating voltages not exceeding 2,000 v.

Sponsor: American Society for Testing Materials

48-Inch (1.5-Ampere) T-12 and PG-17 Rapid-Start Fluorescent Lamps, Dimensional and Electrical Characteristics of, C78.705 (*Proposed American Standard—published for one year's trial use*) $0.40

72-Inch (1.5-Ampere) T-12 and PG-17 Rapid-Start Fluorescent Lamps, Dimensional and Electrical Characteristics of, C78.706 (*Proposed American Standard—published for one year's trial use*) $0.40

Sponsor: Electrical Standards Board

GAS-BURNING APPLIANCES

Approval Requirements for Hotel and Restaurant Gas Ranges and Unit Broilers, Z21.3-1960 (Revision of Z21.3-1956, Z21.3a-1957, Z21.3b-1959) $2.00

Approval Requirements for Central Heating Gas Appliances, Volume II, Gravity and Forced Air Central Furnaces, Z21.13.2-1960 (Revision of Z21.13.2-1958, Z21.13.2a-1959, Z21.13.2b-1960) $2.00

Addenda Z21.13.3a-1960 to American Standard Approval Requirements for Central Heating Gas Appliances, Volume III, Gravity and Fan Type Floor Furnaces, Z21.13.3-1959 $0.75

Addenda Z21.13.3b-1960 to American Standard Approval Requirements for Central Heating Gas Appliances, Volume III, Gravity and Fan Type Floor Furnaces, Z21.13.3-1959 and Z21.13.3a-1960 $0.25

Approval Requirements for Portable Gas Baking and Roasting Ovens, Z21.28-1960 (Revision of Z21.28-1956, Z21.-28a-1957, Z21.28b-1959) $2.00

Approval Requirements for Gas Counter Appliances, Z21.31-1960 (Revision of Z21.31-1956, Z21.31a-1957, Z21.31b-1959) $2.00

Sponsor: American Gas Association

PETROLEUM PRODUCTS AND LUBRICANTS

Cone Penetration of Lubricating Grease, Test for, ASTM D 217-60T; ASA Z11.-3-1960 (Revision of ASTM D 217-52T; ASA Z11.3-1952) $0.30

Describes three test procedures for measuring consistency of lubricating greases by penetration of a standard cone.

Water and Sediment in Crude Oils by Centrifuge, Method of Test for, ASTM D 96-60T; ASA Z11.8-1960 (Revision of ASTM D 96-59T; ASA Z11.8-1960) $0.30

Describes procedures for determination of water and sediment in crude mineral oils.

Melting Point of Petrolatum and Microcrystalline Wax, Method of Test for, ASTM D 127-60; ASA Z11.22-1960 (Revision of ASTM D 127-49; ASA Z11.22-1949) $0.30

Apparatus, procedure, and report for determination of melting point of petrolatum and microcrystalline wax.

Unsulfonated Residue of Petroleum Plant Spray Oils, Method of Test for, ASTM D 483-60T; ASA Z11.41-1960 (Revision of ASTM D 483-52T; ASA Z11.41-1952) $0.30

Determination of unsulfonated residue in plant spray oils of petroleum origin. Applies to petroleum oil content only.

Olefinic Plus Aromatic Hydrocarbons in Petroleum Distillates, Method of Test for, ASTM D 1019-60T; ASA Z11.71-1960 (Revision of ASTM D 1019-58T; ASA Z11.71-1958) $0.30

Intended for determination of olefinic plus aromatic hydrocarbons in gasolines, naphthas, kerosines, and other petroleum distillates that are substantially free from butanes and butenes and that have 90 percent point not over 600 F when determined in accordance with ASTM Method D 86.

Rust-Preventing Characteristics of Steam-Turbine Oil in the Presence of Water, Test for, ASTM D 665-60; ASA Z11.-85-1960 (Revision of ASTM D 665-54; ASA Z11.85-1955) $0.30

Intended to indicate ability of steam-turbine oils and heavier-than-water fluids, including those used for steam-turbine gears, to aid in preventing rusting of ferrous parts should water become mixed with oil.

Kinematic Viscosity, Method of Test for, ASTM D 445-60; ASA Z11.107-1960 $0.60

Covers the determination of kinematic viscosity of transparent or opaque liquids in the range of 0.2 cs and higher.

Sulfur in Petroleum Products and Liquefied Petroleum Gases (Lamp Method), Method of Test for, ASTM D 1266-59T; ASA Z11.108-1960 $0.50

Procedures for determination of total sulfur in liquid petroleum products in concentrations above 0.002 percent by weight and combined sulfur in liquid petroleum gas or in light hydrocarbon mixtures boiling in this range.

ASTM Color of Petroleum Products, Method of Test for, ASTM D 1500-58T; ASA Z11.109-1960 $0.30

Procedure for visual determination of color of wide variety of petroleum products such as lubricating oils, heating oils, diesel fuel oils, and petroleum waxes.

Sponsor: American Society for Testing Materials

PHOTOGRAPHY

Designating and Measuring Focal Lengths and Focal Distances of Photographic Lenses, Methods of, PH3.35-1960 (Revision of Z38.4.21-1948) $1.00

Covers lenses intended to be used with very distant objects. Defines focal plane, principal focus, equivalent focal length, calibrated focal length, front focal distance, back focal distance, flange focal distance, and front vertex back focal distance, and gives methods for their measurement.

Sponsor: Photographic Standards Board

SAFETY

Fundamentals Governing the Design and Operation of Local Exhaust Systems, Z9.2-1960 $4.00

Fundamentals of good practice in industrial exhaust systems installed to prevent unhealthy or unsafe environmental conditions or to minimize nuisances. Includes sections on exhaust hoods and ducts, air-cleaning equipment, fans and blowers, and requirements for the construction, installation, operation, maintenance, and checking of exhaust systems.

Sponsors: American Society of Heating, Refrigerating and Air-Conditioning Engineers; American Industrial Hygiene Association; Air Moving and Conditioning Association

In Process . . .

as of February 17, 1961

BUILDING AND CONSTRUCTION

American Standards Approved

Gypsum Plasters, Specification for, ASTM C 28-60; ASA A49.3-1961 (Revision of ASTM C 28-59; ASA A49.3-1959)

Sponsor: American Society for Testing Materials

Gypsum Wallboard, Specification for, ASTM C 36-60; ASA A69.1-1961 (Revision of ASTM C 36-58; ASA A69.1-1959)

Sponsor: American Society for Testing Materials

Gypsum and Gypsum Products, Methods of, ASTM C 26-60; ASA A70.1-1961 (Revision of ASTM C 26-59; ASA A70.1-1959)

Sponsor: American Society for Testing Materials

Sampling and Testing of Brick, Methods of, ASTM C 67-60; ASA A82.1-1961 (Revision of ASTM C 67-57; ASA A82.1-1958)

Sponsor: American Society for Testing Materials

Sampling and Testing Structural Clay Tile, Methods of, ASTM C 112-60; ASA A83.1-1961 (Revision of ASTM C 112-52; ASA A83.1-1953)

Sponsor: American Society for Testing Materials

Facing Brick (Solid Masonry Units Made from Clay or Shale), Specification for, ASTM C 216-60; ASA A99.1-1961 (Revision of ASTM C 216-57; ASA A99.1-1958)

Sponsor: American Society for Testing Materials

Evaluating the Properties of Wood-Base, Fiber- and Particle-Panel Materials, Methods of Test for, ASTM D 1037-60T; ASA O8.1-1961 (Revision of ASTM D 1037-56T; ASA O8.1-1958)

Sponsor: American Society for Testing Materials

In Board of Review

Door and Frame Preparation for Mortise Door Locks, Specifications for, A115.1-(Revision of A115.1-1959)

Sponsor: National Builders' Hardware Association

In Standards Board

Building Exits Code, A9.1- (Revision of A9.1-1953)

Sponsor: National Fire Protection Association

Ceramic Glazed Structural Clay Facing Tile, Facing Brick, and Solid Masonry Units, Specifications for, ASTM C 126-60T; ASA A101.1- (Revision of ASTM C 126-59T; ASA A101.1-1960)

Sponsor: American Society for Testing Materials

Asphalt-Saturated Roofing Felt for Use in Waterproofing and in Constructing Built-Up Roofs, Specifications for, ASTM D 226-60; ASA A109.2- (Revision of ASTM D 226-56; ASA A109.-2-1956)

Asphalt-Saturated Asbestos Felts for Use in Waterproofing and in Constructing Built-Up Roofs, Specifications for, ASTM D 250-60; ASA A109.4- (Revision of ASTM D 250-56; ASA A109.-4-1956)

Woven Cotton Fabrics Saturated with Bituminous Substances for Use in Waterproofing, Specifications for, ASTM D 173-60; ASA A109.12- (Revision of ASTM D 173-44; ASA A109.12-1955)

Sponsor: American Society for Testing Materials

Refractory Materials, Methods of Chemical Analysis, ASTM C 18-60; ASA A111.2- (Revision of ASTM C 18-52; ASA A111.2-1955)

Sponsor: American Society for Testing Materials

CHEMICAL

American Standards Approved

Common Name for the Pest Control Chemical 2-chloro-4, 6-bis (ethylamino)-*s*-triazine: simazine, K62.28-1961

Common Name for the Pest Control Chemical 2-chloro-4-diethylamino-6-ethylamino-*s*-triazine: trietazine, K62.-29-1961

Sponsor: U.S. Department of Agriculture

CINEMATOGRAPHY

American Standards Approved

Dimensions for 65mm Motion-Picture Film, KS-1870, PH22.118-1961

Dimensions for 70mm Motion-Picture Film, Perforated 65mm, KS-1870, PH22.119-1961

Sponsor: Society of Motion Picture and Television Engineers

CONSUMER GOODS

In Standards Board

Liquid Toilet Soap, Specifications for, ASTM D 799-60T; ASA K60.14- (Revision of ASTM D 799-51; ASA K60.-14-1952

Sponsor: American Society for Testing Materials

ELECTRIC AND ELECTRONIC

American Standards Approved

Electrical Power Insulators, Test Methods for, C29.1-1961 (Revision of C29.1-1944)

Sponsor: Electrical Standards Board

Quantities and Units Used in Electricity, C61.1-1961

Sponsor: Electrical Standards Board

Outlet Receptacles, Attachment Plug Caps and Appliance Plugs, C73.1-1961 (Revision of C73.1-1957 and supplement C73.1a-1959)

Sponsor: National Electrical Manufacturers Association

In Standards Board

Sampling Electrical Insulating Oils, Methods of, ASTM D 923-59; ASA C59.21- (Revision of ASTM D 923-56; ASA C59.21-1958)

Ozone-Resistant Rubber Insulating Tape, Specifications for, ASTM D 1373-59T; ASA C59.37- (Revision of ASTM D 1373-57T; ASA C59.37-1958)

Sponsor: American Society for Testing Materials

Nomenclature for Glass Bulbs Intended for Use with Electron Tubes and Electric Lamps, C79.1- (Revision of C79.1 1958)

Sponsor: Electrical Standards Board

MATERIALS AND TESTING

American Standard Approved

Hardness Conversion Tables for Metals (Relationship Between Brinell Hardness, Diamond Pyramid Hardness, Rockwell Hardness, and Rockwell Superficial Hardness), Z76.4-1961 (to replace American Standards Z76.1-1955, Z76.2-1955, and Z76.3-1955)

Sponsor: American Society for Testing Materials

In Standards Board

Rockwell Hardness of Plastics and Electrical Insulating Materials, Method of Test for, ASTM D 785-60T; ASA K65.3- (Revision of ASTM D 785-51; ASA K65.3-1959)

Specific Gravity of Plastics, Methods of Test for, ASTM D 792-60T; ASA K65.8- (Revision of ASTM D 792-50; ASA K65.8-1959)

Sponsor: American Society for Testing Materials

MECHANICAL

American Standards Approved

Boundary Dimensions for Ball and Roller Bearings, B3.6-1961

Sponsor: Anti-Friction Bearing Manufacturers Association

Miniature Screws, B18.11-1961

Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers

Deep-Well Vertical Turbine Pumps, Specifications for, B58.1-1961 (Revision of B58.1-1955)

Sponsor: American Water Works Association

Shapes and Sizes of Diamond Grinding Wheels, Hand Hones, and Mounted Wheels, B74.3-1961

Sponsor: Grinding Wheel Institute

In Standards Board

Multiple V-Belt Drives, Specifications for, B55.1-

Sponsors: American Society of Mechanical Engineers; National Machine Tool Builders' Association

Free-Cutting Brass Rod, Bar, and Shapes for Use in Screw Machines, Specifications for, ASTM B 16-60; ASA H8.1- (Revision of ASTM B 16-58; ASA H8.1-1959)

Sponsor: American Society for Testing Materials

METALLURGY

In Standards Board

Zinc-Coated (Galvanized) Steel Tie Wires, Specification for, ASTM A 112-59; ASA G8.4- (Revision of ASTM A 112-33; ASA G8.4-1935)

Zinc-Coating (Hot-Dip) on Iron and Steel Hardware, Specifications for, ASTM A 153-60; ASA G8.14- (Revision of ASTM A 153-59; ASA G8.14-1959)

Sponsor: American Society for Testing Materials

Uncoated Wrought Iron Sheets, Specifications for, ASTM A 162-60T; ASA G23.1- (Revision of ASTM A 162-39; ASA G23-1939)

Sponsor: American Society for Testing Materials

Gray Iron Castings, Specifications for, ASTM A 48-60T; ASA G25.1- (Revision of ASTM A 48-56; ASA G25.1-1956)

Sponsor: American Society for Testing Materials

Nickel-Steel Plates for Boilers and Other Pressure Vessels, Specifications for, ASTM A 203-60; ASA G33.1- (Revision of ASTM A 203-56; ASA G33.1-1956)

Sponsor: American Society for Testing Materials

Mild-to-Medium-Strength Carbon-Steel Castings for General Application, Specifications for, ASTM A 27-60; ASA G50.1- (Revision of ASTM A 27-58; ASA G50.1-1959)

Sponsor: American Society for Testing Materials

High-Strength Steel Castings for Structural Purposes, Specifications for, ASTM A 148-60; ASA G52.1- (Revision of ASTM A 148-58; ASA G52.1-1959)

Sponsor: American Society for Testing Materials

Electrodeposited Coatings of Lead on Steel, Specifications for, ASTM B 200-60; ASA G53.8- (Revision of ASTM B 200-55T; ASA G53.8-1956)

Sponsor: American Society for Testing Materials

MISCELLANEOUS

In Standards Board

Thermometers, Specifications for, ASTM E 1-60; ASA Z71.1- (Revision of ASTM E 1-60; ASA Z71.1-1960)

Sponsor: American Society for Testing Materials

Reaffirmation Being Considered

Rules for Rounding Off Decimal Values, Z25.1-1940(R1947)

PHOTOGRAPHY

American Standards Approved

Thickness of Photographic Paper, Designation for, PH1.1-1961 (Revision of PH1.1-1953)

Photographic Sheet Paper for General Use, Dimensions for, PH1.12-1961 (Revision of PH1.12-1953)

Industrial X-ray Sheet Film (Inch Sizes), Dimensions for, PH1.15-1961 (Revision of PH1.15-1953)

Graphic Arts Sheet Film (Inch and Centimeter Sizes), Dimensions for, PH1.16-1961 (Revision of PH1.16-1953)

16-Millimeter 100-Foot Film Spools for Recording Instruments, Microfilm, and Still-Picture Cameras, Dimensions for, PH1.33-1961 (Revision of Z38.1.52-1951)

16-Millimeter 200-Foot Film Spools for Recording Instruments, Microfilm, and Still-Picture Cameras, Dimensions for, PH1.34-1961 (Revision of Z38.1.53-1951)

35-Millimeter 100-Foot Film Spools for Recording Instruments, Microfilm, and Still-Picture Cameras, Dimensions for, PH1.35-1961 (Revision of Z38.1.54-1951)

70-Millimeter 100-Foot Film Spools for Recording Instruments, Microfilm, and Still-Picture Cameras, Dimensions for, PH1.36-1961 (Revision of Z38.1.55-1951)

Sponsor: Photographic Standards Board

Photographic Flashlamps — ASA Type 250, Dimensions for, PH3.36-1961

Sponsor: Photographic Standards Board

In Board of Review

Speed of Reversal Color Films for Still Photography, Method for Determining, PH2.21-

Sponsor: Photographic Standards Board

In Standards Board

Converting Weights and Measures for Photographic Use, Method for, PH4.6- (Revision of PH4.6-1953)

Bite of Film-Processing Clips for Roll and Dental Films, Dimensions for, PH4.15- [Revision of PH4.15-1945 (R1954)]

Sponsor: Photographic Standards Board

American Standard Reaffirmed

Photographic Grade Blotters, Requirements for, PH4.10-1953(R1961)

Sponsor: Photographic Standards Board

PIPE AND FITTINGS

In Standards Board

Standard Strength Unglazed Clay Pipe, Specifications for, ASTM C 261-60T; ASA A106.4- (Revision of ASTM C 261-59T; ASA A106.4-1960)

Clay Pipe, Methods of Testing, ASTM C 301-60T; ASA A106.5- (Revision of ASTM C 301-55; ASA A106.5-1955)

Sponsor: American Society for Testing Materials

SAFETY

American Standard Approved

Safety Code for Laundry Machinery and Operations, Z8.1-1961

Sponsors: International Association of Governmental Labor Officials; National Association of Mutual Casualty Companies; Institute of Industrial Launderers

TEXTILES

American Standards Approved

Methods of Testing and Tolerances for Certain Wool and Part Wool Fabrics, ASTM D 462-59; ASA L14.28-1961 (Revision of ASTM D 462-53; ASA L14.28-1954)

Methods of Testing Felt, ASTM D 461-59; ASA L14.52-1961 (Revision of ASTM D 461-57T; ASA L14.52-1959)

General Methods of Testing Woven Fabrics, ASTM D 39-59; ASA L14.68-1961 (Revision of ASTM D 39-49; ASA L14.68-1951)

Methods of Test for Number of Neps in Cotton Samples, ASTM D 1446-59T; ASA L14.97-1961 (Revision of ASTM D 1446-53T; ASA L14.97-1957)

Method of Test for Micronaire Reading of Cotton Fibers, ASTM D 1448-59; ASA L14.99-1961 (Revision of ASTM D 1448-56; ASA L14.99-1957)

Sponsors: American Society for Testing Materials; American Association of Textile Chemists and Colorists

American Standards Withdrawn

Test Method for Dimensional Changes in Textile Fabrics (Other Than Cotton and Linen), AATCC 40-1952; ASA L14.76-1960

Test Method for Colorfastness to Mercerizing, AATCC 51-1952T; ASA L14.80-1956

Test Method for Damage Caused by Retained Chlorine, AATCC 69-1958T; ASA L14.86-1960

Sponsors: American Society for Testing Materials; American Association of Textile Chemists and Colorists

AMERICAN STANDARDS PROJECTS

Ladder Towers and Rolling Scaffolds, A92—

The National Association of Mutual Casualty Companies has joined the American Society of Safety Engineers as co-sponsor of project A92. The work of the project is concerned with safety standards.

Allowances and Tolerances for Cylindrical Parts and Limit Gages, B4—

Sponsor: American Society of Mechanical Engineers

A man with a long and active history in standardization became chairman of Sectional Committee B4 recently. He is Glen H. Stimson, chief engineer, Greenfield Tap & Die, Greenfield, Mass., recently appointed a member of ASME's Board on Codes and Standards. Mr Stimson's 5½-year term as a member of the Board started December 2, 1960.

Mr Stimson is not only active in the work of Committee B4, but also is a member of Sectional Committee

Glen H. Stimson

B2, Pipe Threads, of Sectional Committee B1, Screw Threads, and of a number of subcommittees of Sectional Committee B1, Screw Threads. He is chairman of B1 Subcommittee 9, Screw Thread Gages and Gaging. He was a representative of the Amercian Standards Association at the Plenary Session of the International Organization for Standardization, Technical Committee on Screw Threads, ISO/TC 1, in Harrogate, England, in 1958, and in 1960 he was one of ASA's representatives at the A-B-C meeting held in Ottawa, Canada.

Mr Stimson has been associated with the Greenfield Tap & Die, Division of United-Greenfield, for 36 years. He is a member of the American Society of Mechanical Engineers, the Society of Automotive Engineers, and the American Society of Tool and Manufacturing Engineers.

Bolts, Nuts, Rivets, Screws, and Similar Fasteners, B18—

Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers

Sectional Committee B18 "is responsible for standardization of dimensional, physical, and performance characteristics required for the specification and manufacture of bolts,

Roy P. Trowbridge

nuts, rivets, screws, and similar fasteners," explains Roy P. Trowbridge, General Motors Corporation. Mr Trowbridge took office recently as chairman of the committee, replacing H. W. Robb, General Electric Company, long active in ASA work, who retired last year.

"The sectional committee is representative of a wide cross section of technical societies and trade associations having interests in fastener standardization and, through liaison membership, maintains close contact with fastener standardization in the Department of Defense," Mr Trowbridge points out. There are 11 B18 standards in print and available from the American Standards Association and The American Society of Mechanical Engineers. Soon to be released is the new standard for miniature screws which has been developed to fill the need for smaller fastening devices resulting from extreme miniaturization in the instrumentation and missile fields.

Subcommittees are currently engaged in revising the small rivet standard, B18.1; the square and hexagon bolt and nut standard, B18.2; the machine, wood, and tapping screw standards; the cap screw and set screw standards, including socket, head cap screws and socket set screws; and the standard for track bolts and nuts.

Work is under way or soon to be undertaken on new standards for prevailing torque hexagon lock nuts, high-strength structural bolts, fastener nomenclature, tubular and split rivets, and interference fit studs, Mr Trowbridge reports.

Sectional Committee B18 is also responsible for preparation of the United States position in international standardization for consideration at the American-British-Canadian level and by the International Organization for Standardization. The committee is currently submitting a set of hexagon bolt and nut dimensions consistent with the current American Standards for consideration by ISO/TC 2, Bolts, Nuts, and Accessories.

Mr Trowbridge is also chairman of the newly organized Sectional Committee on Decimal Dimensioning, B87, and of Sectional Committee B27, Standardization of Washers and Machine Rings. He is secretary of Sectional Committee B46, Classification and Designation of Surface Qualities. He is a member of the Graphic Standards Board and a special member of the Mechanical Standards Board, and represents the Automobile Manufacturers Association on the Standards Council of ASA.

Institutional Textiles, L24—

Sponsor: American Hotel Association

At a meeting October 20, 1960, the committee took action to reorganize its subcommittees as the first step toward revision or reaffirmation of the

Clifford R. Gillam

photo: Fabian Bechrach

five-year-old institutional textiles standards. These standards are performance requirements for institu-

tional furnishings, L24.1.1- through L24.1.7-1955; utility textiles, L24.2.1- through L24.2.11-1955; uniforms, L24.3.1- through L24.3.7-1955; work clothes, L24.4.1- through L24.4.11-1955; and permanent labels, detachable tags, and certification of fabrics or products, L24.5.1-1955.

Five subcommittees have been set up as the result of the October meeting: (1) Institutional furnishings; (2) Utility textiles; (3) Uniforms; (4) Work clothes; and (5) Technical and editorial.

J. S. Fassett

Meetings are already being held by the subcommittees and possible changes in the 1955 edition are being considered.

The work of the subcommittee on institutional furnishings is almost completed. One new area under consideration by the subcommittee is standards for glass fibers to include drapery fabrics.

All the subcommittees hope to complete their work before the American Hotel Association holds its Fall meeting so the new edition can be considered by the Association as a basis for its certification of products.

Clifford R. Gillam of Buck Hill Falls, Pa., and a member of ASA's Board of Directors, is chairman of Sectional Committee L24. J. S. Fassett, American Hotel Association, was elected secretary at the October meeting. Mr Fassett represents the American Hotel Association on ASA's Standards Council and is a member of the Board of Review.

Personal Protective Clothing—

The United States has been invited to take part in an international project to develop safety standards for clothing and equipment used for personal protection. The project was proposed to the International Organization for Standardization by the British Standards Institution, which has submitted a British Standard for consideration. The proposal is now in the hands of ASA's Safety Standards Board, which will call a conference of the groups concerned to advise ASA on the action to be taken. The American Standards Association will welcome the name and address of any organization having a special interest in this subject.

Attachment Plugs and Receptacles, C73—

Sponsor: National Electrical Manufacturers Association

A change in the scope of this project has been approved to recognize the committee's work on attachment plugs, receptacles, and connectors in ratings of not more than 600 volts and not more than 200 amperes. The former scope called for work in ratings of 125 and 250 volts and 60 amperes and under.

The work of the committee covers construction, performance, rating, and testing of interchangeable, separable attachment plugs, receptacles, and connectors to be used in commercial, industrial, and domestic branch circuits.

Home Kitchen Utensils, Z61—

Sponsor: American Home Economics Association

In a meeting called to review American Standard Dimensions, Tolerances, and Terminology for Home Cooking and Baking Utensils, Z61.1-1949, samples of baking utensils purchased at local stores were used to help in determining whether the standard should be reaffirmed as being up to date.

A number of new types of pans are on the market since the publication of the standard in 1949, the chairman pointed out.

Mrs Anna F. Rush, associate household equipment editor of *McCall's Magazine*, representing the American Home Economics Association, is chairman. She announced appointment of Miss Virginia Schroeder, director of test kitchens, Standard Brands, Incorporated, also representing AHEA, as vice-chairman.

In displaying the cooking utensils, Mrs Rush called attention to an octagonal pie pan; the 1949 standard covers only round pie pans. Pizza pans are a new item since publication of the 1949 edition, she reported. Square tube cake pans are now available, whereas the standard covers only round tube cake pans. Disposable aluminum foil baking pans are now being used. Loaf baking pans, especially those for small fruit cakes, are very popular. These were not included in American Standard Z61.1-1949.

Coffeemakers, which were not covered in the 1949 edition, were also considered at the meeting. The discussion indicated that manufacturers

AT FAR TABLE (left to right): Mrs Ellen Bridges, American Gas Association; Mrs Loretta Lovell, ASA staff; Miss Rose White, secretary, Consumer Goods Standards Board, and home economist, ASA; Mrs Anna Fisher Rush, McCall's Magazine (American Home Economics Association), chairman; Mr R. C. Deardorff, Wearever Aluminum, Inc (Aluminum Wares Association); Dr Ernest E. Lockhart, Coffee Brewing Institute. AT FRONT TABLE, left side: Mrs Mildred G. Arnold, Revere Copper & Brass, Inc; Miss Pauline B. Wilson, observer (American Glassware Association); Miss Lucy Maltby, Corning Glass Works (American Glassware Association); Miss Virginia Schroeder, Standard Brands, Inc (AHEA). AT FRONT TABLE, right side (reading front to back): Mrs Martha M. Kelly, General Foods Corporation (Grocery Manufacturers of America); Mr R. S. Thompson, Porcelain Enamel Institute; Mrs Faith Churchill, Clothing and Housing Research Division, Agricultural Research Service, U.S. Department of Agriculture; Mr M. G. Armentrout, observer (Wearever Aluminum, Inc).

differ as to the capacity of the cups on which they base the capacity of the coffeemaker. Some consider the capacity of a coffee cup to be 6 ounces, some 5½ ounces, and others 4 ounces.

In answer to a question whether American Standard Z61.1-1949 is now being used, it was the opinion that it is. However, no records are available to show which manufacturers are complying with the standard.

As a result of these discussions, the committee decided to review American Standard Z61.1-1949 with the idea of revising and adding to it wherever necessary.

Five subcommittees were authorized: Baking utensils, Mrs Anna Rush, chairman.

Top-of-range cooking utensils, R. C. Deardorff, Wearever Aluminum, Inc, representing the Aluminum Wares Association, chairman.

Coffeemakers and teamakers, Mrs Mildred G. Arnold, Revere Copper and Brass, Incorporated, chairman.

Jelly and baking molds, Mrs Martha Kelly, General Foods Corporation, representing the Grocery Manufacturers Association, chairman.

Survey on use of American Standard Z61.1-1949, Mrs Ellen Bridges, American Gas Association, chairman.

The committee also decided to establish liaison with the National Electrical Manufacturers Association in its work on electric coffeemakers and other electric cooking utensils.

The next meeting of Sectional Committee Z61 will be held early in June, at which time progress reports of subcommittees are expected.

Prevention or Control of Hazards to to Children, Z66—

Sponsor: American Academy of Pediatrics

Subcommittee 1, on hazards to children from residual surface coating materials, is working on a revision of American Standard Z66.1-1955. The subcommittee, which held a meeting January 19 and is scheduled to meet again on March 15, is considering adding practical test methods as part of the revised standard.

A new subcommittee on prevention of washer-wringer accidents is beginning to function. It plans to hold its first meeting by the end of April.

A third subcommittee will explore different types of hazards, such as swimming pools and floor heating grates, to determine whether safety standards are needed.

STANDARDS ALIVE

A Guest Column

by F. M. Howell

ALTHOUGH A COMPLAINT ABOUT THE USE of "private" standards in contracts for materials, finishes, and processes, published in the August 1960 issue of THE MAGAZINE OF STANDARDS, was from a British engineer, it is echoed in this country. Ours is one of the U.S. companies that uses these private standards.

Our company is a medium-sized, small-volume manufacturer. We utilize some 37 major types of materials in our products (excluding tool steels, glass, plating, paints, and bulk materials), including cast alloys, wrought aluminum, carbon and alloy steels, copper alloys, stainless steels, and plastics. Of these, we consider 4 casting alloys and 11 wrought materials as "standard," the balance being of limited use.

Within each material category, however, there are minor variations such as temper, finish, and size. These multiply the number of possible varieties of raw material for use in our parts to astronomic proportions. In sheet materials, for example, where we have standardized on 36 x 96 sheet sizes and eliminated many gage sizes, we have 338 possible types of composition, thickness, and finish. In bar stock, this figure is trebled. In flat stock or strip, it would be doubled again.

This presents a real problem in controlling raw material inventory and standardizing parts fabrication by reducing raw material varieties.

We utilize various recording and filing systems in our plants for procurement, cost, inventory, and production orders for parts. These include cardex files, traveling requisitions, and IBM materials listings. Unification of these systems requires homogeneous coding of our material for logical handling. We must assign a unique code to each material by grade, shape, and size to ensure that our designer's specification is incorporated on our final product.

As a basis for this coding we needed a uniform classification of materials. We would have been glad to adopt a widely recognized industrial classification system but, unfortunately, no such system exists. Instead, we have one classification for wrought steel products, another for aluminum, another for stainless, none for copper alloys, and none for plastics or cast products. In some of these systems, such as the SAE numbering system and Federal QQ specifications, several classes of materials are handled; however, in both these systems certain materials necessary for our use are missing. The need for uniformity is apparent in the duplications. For some materials, there are as many as nine industrial and military designations.

Our only alternative has been to initiate our own system based on our own requirements. This necessitates our sending a complete set of specifications to all our vendors—an operation we do not care for, but find unavoidable.

If the American Standards Association would undertake to classify all commercially available materials in a uniform numbering system, our company, for one, would soon adopt it.

MR HOWELL is in charge of Manufacturing Standards, Haloid Xerox Inc, Rochester, N.Y.

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